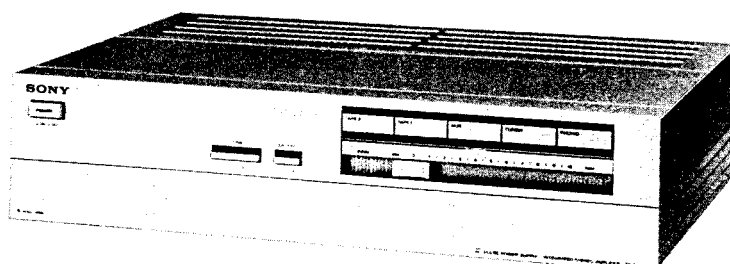


TA-AX7

AEP Model
UK Model



INTEGRATED STEREO AMPLIFIER

SPECIFICATIONS

Amplifier section

Continuous RMS power output

(Less than 0.004% THD, both channels driven simultaneously) 20 Hz - 20 kHz
80 + 80 watts (8 ohms)
According to DIN 45500
80 + 80 watts (8 ohms)

Power bandwidth (IHF)

5 Hz - 100 kHz

Dynamic headroom

1.9 dB*

Slew rate

→ 200 V/μ sec

480 V/μ sec (power stage)

Harmonic distortion

Less than 0.004% at rated output

Less than 0.003% at 40 W output

Intermodulation (IM) distortion

(60 Hz : 7 kHz = 4 : 1)

Less than 0.004% at rated output

Less than 0.003% at 40 W output

Frequency response

PHONO RIAA equalization curve ±0.2 dB

TUNER

AUX

TAPE 1, 2

0.1 Hz - 600 kHz ±₃⁰ dB

Residual noise

Less than 25 μV (8 ohms, network A)

Damping factor

150 (8 ohms, 1 kHz)

WARNING!!

THIS SET USES THE SWITCHING-TYPE POWER-SUPPLY CIRCUIT, WHICH IS DIRECTLY CONNECTED TO THE AC POWER LINE. AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD.


Inputs

	Setting of the CAR-TRIDGE LOAD selector	Sensitivity	Impedance	Maximum input capability (1 kHz)	S/N (weighting network, input level)
MM	100 pF 330 pF	2.5 mV	50 kΩ	180 mV	83 dB 80 dB* (A, 2.5 mV)
PHONO					
MC	40 Ω 3 Ω	0.13 mV	100 Ω 30 Ω	8 mV	64 dB 70 dB* (A, 0.25 mV)
TUNER					
AUX	—	150 mV	50 kΩ	—	85 dB 92 dB* (A, 150 mV)
TAPE 1, 2					

* '78 IHF

— Continued on page 2 —

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.



SONY

SERVICE MANUAL

108

TA-AX7

Outputs	REC OUT 1,2 Voltage 150 mV Impedance 1 kilohm	Low filter Muting	6 dB/octave attenuation below 15 Hz -20 dB
	SPEAKERS A or B: Accepts speakers of 4 - 16 ohms. A + B: Accept speakers of 8 - 16 ohms.	General System	Current-drive integrated stereo amplifier
	HEADPHONES Accepts low and high impedance headphones.	Power requirements	AEP model: 220V ac, 50Hz UK model: 240V ac, 50 Hz
Tone controls	BASS ±10 dB at 60 Hz (turnover frequency 300 Hz) TREBLE ±10 dB at 25 kHz (turnover frequency 5 kHz)	Power consumption	AEP model: 200 watts UK model: 370 watts
Bass boost	+ 4 dB at 50 Hz	Dimensions	Approx. 430 × 105 × 350 mm (w/h/d) (17 × 4 ¹ / ₄ × 13 ³ / ₄ inches) including projecting parts and controls
		Weight	Approx. 6.7 kg (14 lb 12 oz) net Approx. 7.5 kg (16 lb 9 oz) in shipping carton

MODEL IDENTIFICATION

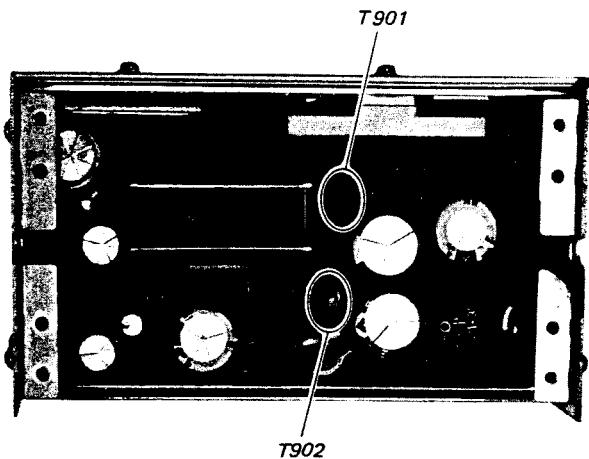
— Specification Label —

SONY®	MODEL NO. TA-AX7
INTEGRATED STEREO AMPLIFIER	
<div style="border: 1px solid black; height: 15px; width: 100%;"></div>	
<div style="display: flex; justify-content: space-between;"> <div>SERIAL NO.</div> <div></div> </div> <div style="display: flex; justify-content: space-between;"> <div>MADE IN JAPAN</div> <div></div> </div>	

AEP model: AC 220V ~ 50/60Hz 200W
UK model: AC 240V ~ 50/60Hz 370W

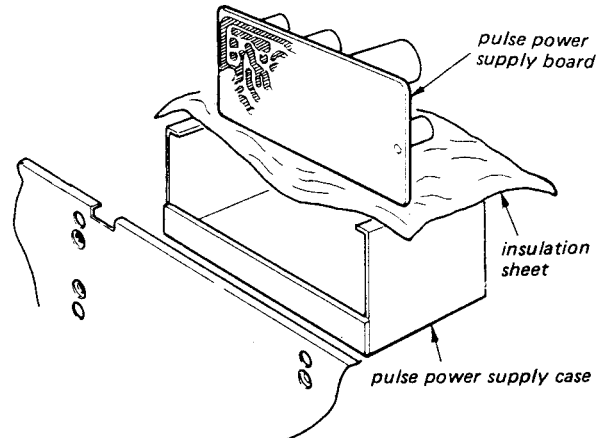
SERVICING NOTES

1. This set employs a pulse power supply as opposed to a conventional circuit with a power transformer.
 - 1) The pulse power supply rectifies and filters the commercial power source directly, so a higher than usual DC voltage is applied to the power supply section. Take sufficient care when servicing.
 - 2) The pulse waves contain a large amount of high cycle components, and in order to prevent interference from this waste radiation, the pulse power supply board is enclosed in a separate aluminum case.
 - 3) If either Q903 or Q904 is defective, replace both. The replacement part includes both transistors.
 Service Code
 X-4873-603-1 transistor kit
 (2SC2944)
2. After AC rectification, there is still voltage remaining in the aluminum electrolytic capacitor (C952) even when the power switch is OFF, so be very careful when discharging. Be sure to use a resistor with 100Ω value. It is dangerous to discharge by using a lead directly.



Servicing Notes/Checking the Pulse Power Supply Section

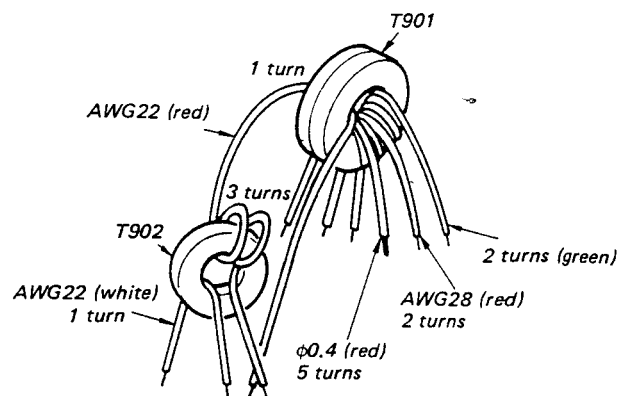
1. When checking or servicing the pulse power supply, spread an insulation sheet on top of the chassis or the case.
2. Be careful not to cause a short in the chassis or the case.



Replacement of Pulse Power Supply Transformers (T901, 902)

The leads of transformers T901, 902 in the inverter circuit are shown in the illustration below. Only the core is supplied for T901, 902 replacements parts, without the lead cover.

In the event of a defect, refer to the illustration to prepare the transformer. Make sure that the leads are of uniform length.



[MEMO]

Handwriting practice area with 20 horizontal dashed lines.

SECTION 1 OUTLINE

1-1. CIRCUIT DESCRIPTION

V-I Amp, Current-type Tone Control, Servo System

The general composition of TA-AX7 is shown in Figure 1. New circuits are the V-I converter (V-I amp), current-type tone control and the servo system.

• Servo System

There is a servo loop in the equalizer amp and the V-I converter. Following is a basic explanation using the equalizer amp as an example. The servo in the V-I converter is discussed in the section on the converter. The equalizer amp basically consists of a DC amp, but when there is no servo loop, a considerable amount of offset voltage will appear in the output signal. Even if the \pm offset voltage is suppressed by balance adjustment, it usually drifts over a long period of time. Generally, a capacitor is inserted into the output circuit to intercept the DC components. In this case the following two problems arise:

- 1) When DC potential is applied to the input circuit, the output signal actuation point deviates and the upper or lower part of the waveform will be clipped.

- 2) There is a danger of deterioration in sound quality because of the capacitor.

The servo loop serves to prevent these problems. Basically, it detects the DC voltage deviation in the output signal and feeds it out-of-phase to the input signal, thus removing the deviation.

Figure 3 is a theoretical diagram. Here β_1 is a conventional feedback loop, and without β_2 , the system's gain is around $1/\beta_1$ (β_1 in Figure 5). β_2 servo loop amplifies only the DC components and returns them to the input circuit, so it consists of the integrator.

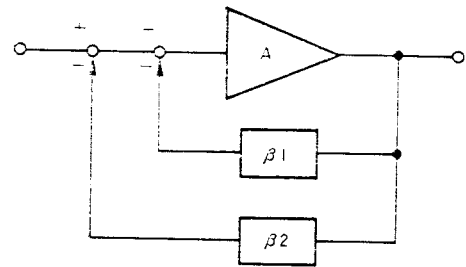


Fig. 3

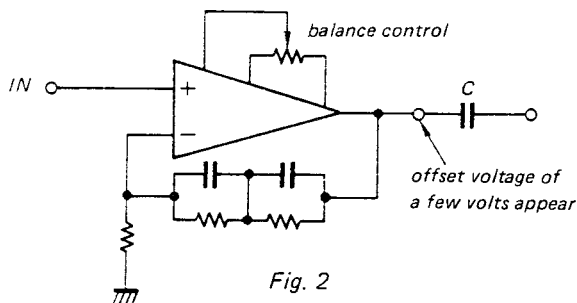


Fig. 2

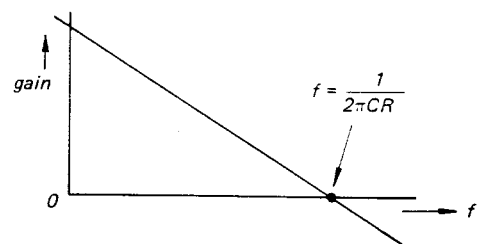
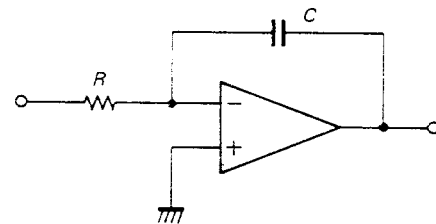


Fig. 4

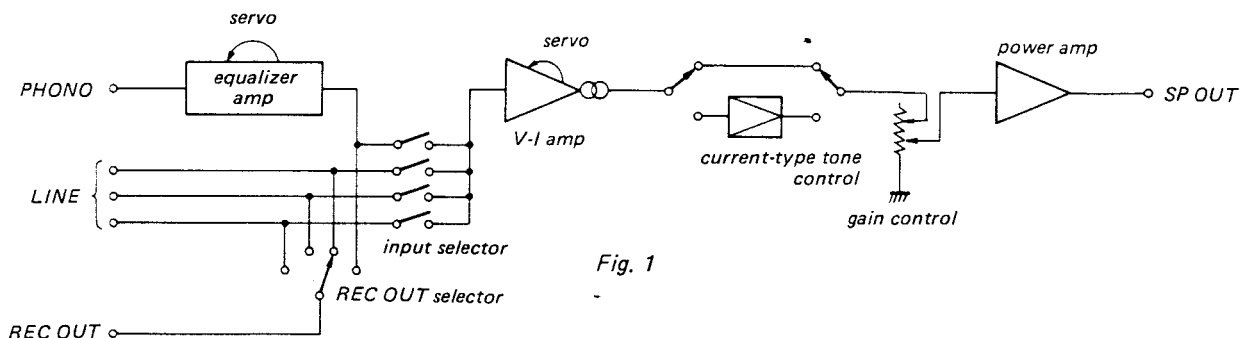


Fig. 1

In the Bode's diagram in Figure 5, if A is the amp open-loop gain, and β_1 is a regular feedback loop (here, equalizer element), and without β_2 , the system's frequency response becomes β_1 (same as conventional system). When β_2 loop is added, and the frequency is below the intersecting point of the frequency responses of β_1 and β_2 , the gain is less than β_1 , and ultimately becomes β_2 . The difference between β_1 and β_2 is due to the increase in NFB amount, so the offset drift is improved as shown by the slanting lines in the diagram. (At frequency f_L (Hz), suppressed to $1/GL$.) Also, as seen at β_{12} , the gain becomes even less as the frequency is lowered, so even if dc component is applied to the input signal, it will not appear in the output.

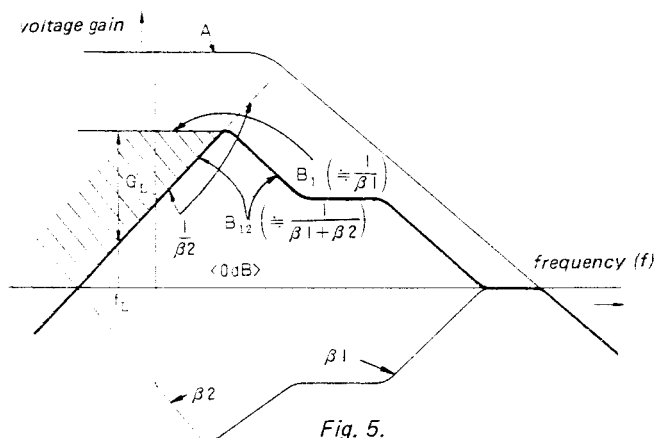


Fig. 5.

In Figure 3, β_2 was described as simply feeding back to the input signal, but in TA-AX7's equalizer it passes through an auxiliary circuit and feeds in partway along the circuit. Figure 6 shows the location where it feeds in.

In the input section of the CX550 equalizer, an FET one-stage buffer is added. And, the integrated output signal of the servo detection is applied to the differential amp of the two transistors. It is fed into the circuit by adding the current from this collector to the FET drain. The feed-in to the V-I amp will be explained later.

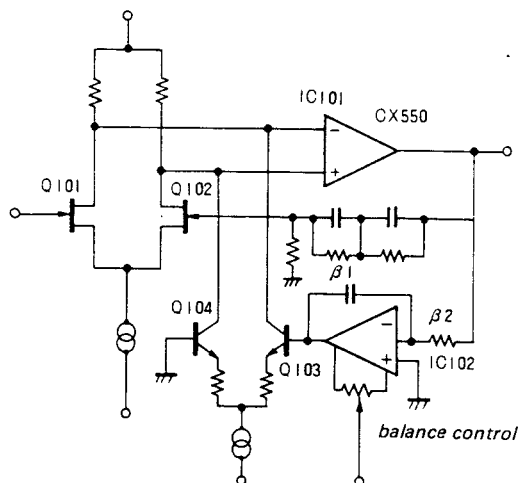


Fig. 6.

V-I Converter (IC201)

In TA-AX7, the input voltage signal is converted once to a current signal, and the signal is transmitted by changing it back to voltage form through a resistor. Gain control is accomplished through this variable resistor. In Figure 7, if V-I amp input is e_i (V) and output current is i_o (A),

$$i_o = g \cdot e_i \dots \dots \dots (1)$$

" g " is converter conductance, and the unit is S (Si seimence). In this set " g " is 0.67 (mS).

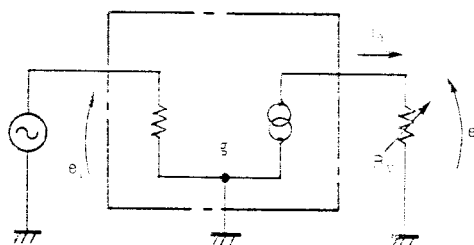


Fig. 7.

This current i_o is changed back to output voltage e_o (power amp input voltage) by resistance R_v . In other words:

$$e_o = i_o \cdot R_v \dots \dots \dots (2)$$

This formula for voltage gain is for a circuit including both V-I amp and R_v . R_v does the gain control, and $g=0.67$ (mS), so when $R_v=1.5$ (k Ω), it becomes unity gain (0dB).

Figure 8 is a basic diagram of the V-I converter circuit.

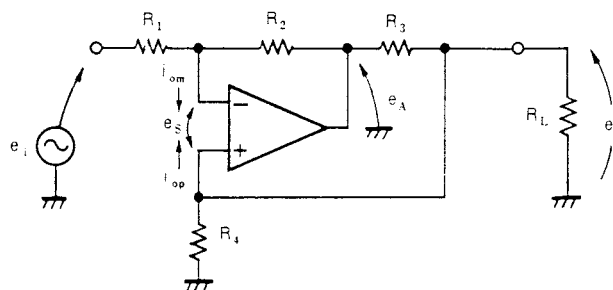


Fig. 8.

(Note: In TA-AX7 circuit, R_1 — R_4 correspond to the following resistors: R_1 —R205, R_2 —R208, R_3 —R209, R_4 —R206.)

Assume the following:

1. The operation amp is operating normally, so
 $i_{op} = 0, e_s = 0, i_{om} = 0$
2. $\frac{R_1}{R_4} = \frac{R_2}{R_3}$ (condition for constant current)

Also, $R_1 = R_4$, and $R_2 = R_3$.

Figure 9 shows Figure 8 rewritten. First,

$i_{om} = 0$ therefore $i_1 = i_2$

$i_{op} = 0$ therefore $i_4 + i_L = i_3$ ③

Also, $R_2 = R_3$ and $e_s = 0$, so

$i_2 = i_3$ ④

Therefore, from ③ and ④:

$i_1 = i_4 + i_L$ ⑤

This means that the sum of the current flowing on R_1 is equal to that flowing on R_4 plus R_L . By focusing on R_1 , this current value is as follows:

$i_1 = (e_o - e_i)/R_1 = -e_i/R_1 + e_o/R_1$ ⑥

For the same value ($i_4 + i_L$), i_4 is:

$i_4 = e_o/R_4 = e_o/R_1$ (because $R_4 = R_1$)

So, from formula ⑥, the remaining i_L is $-e_i/R_1$, or:

$i_L = -\frac{1}{R_1} \times e_i$ ⑦

R_L does not appear in this formula, so "output current has no relation to load resistance" or the current is constant.

It can be seen from formulas ① and ⑦ that the aforementioned "g" is $g = -1/R_1$. The negative sign indicates the reverse amplifier. When there is signal-source resistance on the input circuit, this V-I converter destroys the constant current, so a buffer stage is inserted before it. Also, the servo is the same up to detecting e_A level and integrating, but after that this is V-I converted and fed into the connecting point of R_1 and R_2 . Then it controls i_1 flowing into R_1 , so it is the same feed-in value as that of the e_i which originally produced one part of i_1 .

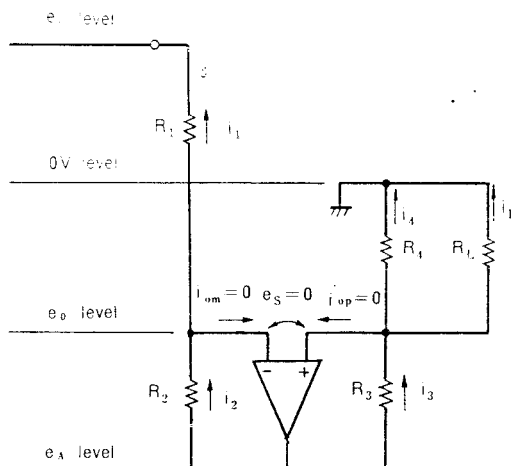


Fig. 9.

• Current-type Tone Control

This is a current input-output type tone amp inserted between the V-I amp output signal and gain controller (RV607). The basic diagram of the current-current amp is shown in Figure 10. Note that there is no potential difference between the input and output terminals. Based on this the diagram is rewritten as shown in Figure 11.

If the current does not flow into the operation amp, and $e_s = 0V$, $i_1 \cdot Z_1 = i_o \cdot Z_2$

$$\therefore i_o \therefore \frac{i_1}{i_o} = \frac{Z_2}{Z_1}$$

From the above formula it can be seen that the value of the ratio of i_1 to i_o is determined by the ratio of Z_2 to Z_1 . Actually, as shown in Figure 12, conventional impedance is employed. The part below the dotted line sets the impedance ratio for high frequency, and the part above for low frequency. The section with the switch is Bass Boost, and Switch OFF $\rightarrow Z_1$ impedance rising in low frequency $\rightarrow Z_1 > Z_2 \rightarrow i_o > i_1$ = low boost.

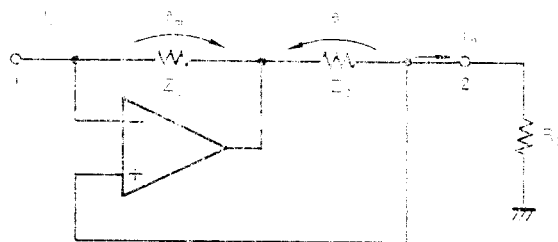


Fig. 10.

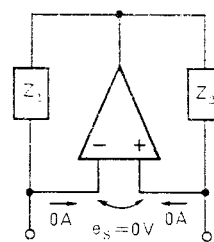


Fig. 11.

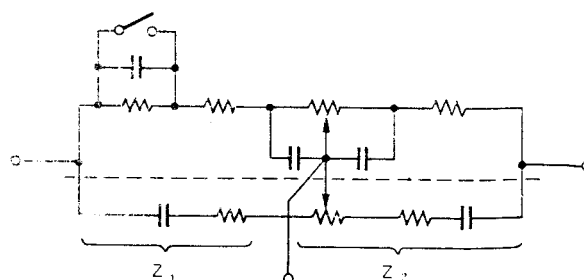


Fig. 12.

Checking of Individual Boards

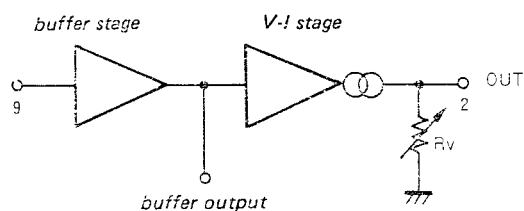


Fig. A

If breakdown is suspected in any of the individual boards (equalizer amp, V-I amp, power drive), use the following methods for voltage and operation checks.

— Equalizer Amp Board —

Connect as shown in Figure C. If it is just an operation check, the equalizer element only requires resistance. Use as thick a ground as possible, and the bypass capacitor should be around 470-1,000 μF (25V). The center gain will be about 36dB at 1kHz. Therefore, when input level is -36dB, the output voltage will be 0dB.

— V-I Amp Board —

Connect as shown in Figure D. Bypass with a capacitor with a good high frequency response on +6 and 8- pins. (Without the capacitor, there is a danger of oscillation in the buffer stage.) The V-I amp board is composed of the buffer stage and V-I amp. The buffer outputs at pin 7, so the defective point should be determined before or after this point. (See Figure A) There is a small amount (less than 1V) of dc offset voltage in the buffer stage. Output at pin 2 is current output, so pass it through resistor R_v when doing a voltage check. When $R_v = 1.5\text{k}\Omega$, IN/OUT becomes unity gain, so if input voltage is -16dB, output voltage is around 0dB. The set will receive maximum volume control of $10\text{k}\Omega$ so check up to $10\text{k}\Omega$.

— Power Drive Board —

Connect as shown in Figure E. Because center gain is 28dB, if input voltage is -28dB the output voltage will become 0dB. If the lead wires are not arranged properly on the board, oscillation may occur. In this event put a capacitor of around 47pF between IN and the ground (pin 1, 2) and 12pF between pin 4 and the ground to stop the oscillation.

1S1555X6, MV12NX3, SV04+MC12V, etc. can be used for the 6 diodes between pins 9-15.

In actual connection there is no balance adjustment so dc offset voltage is generated, but by reconnecting in either of the ways shown in Figure B, the plus and minus of the output offset voltage should reverse.

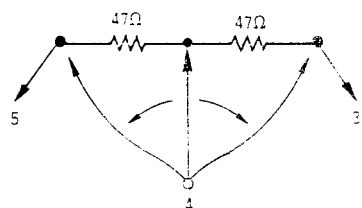


Fig. B

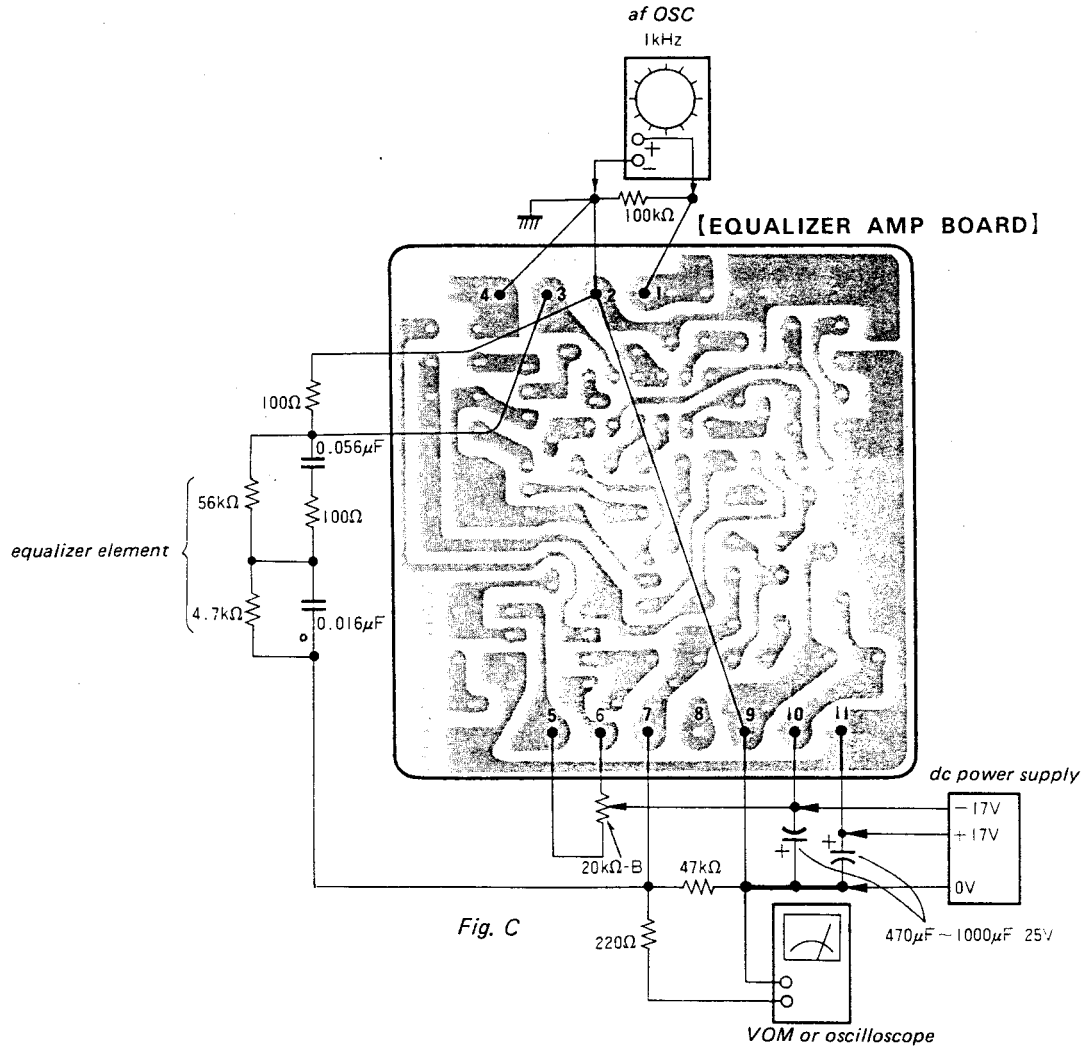


Fig. C

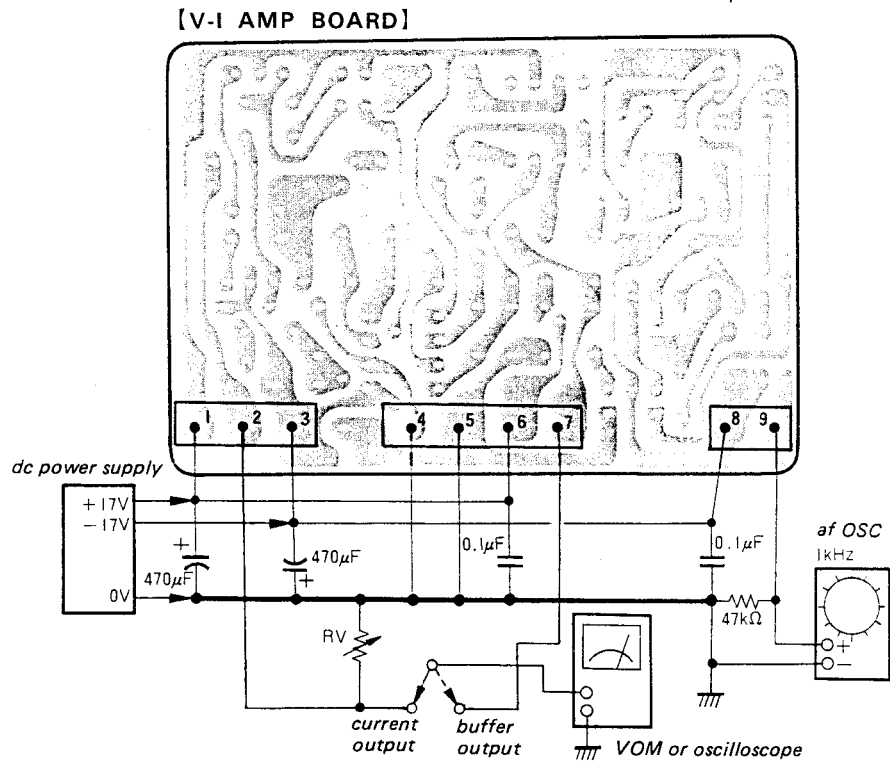


Fig. D

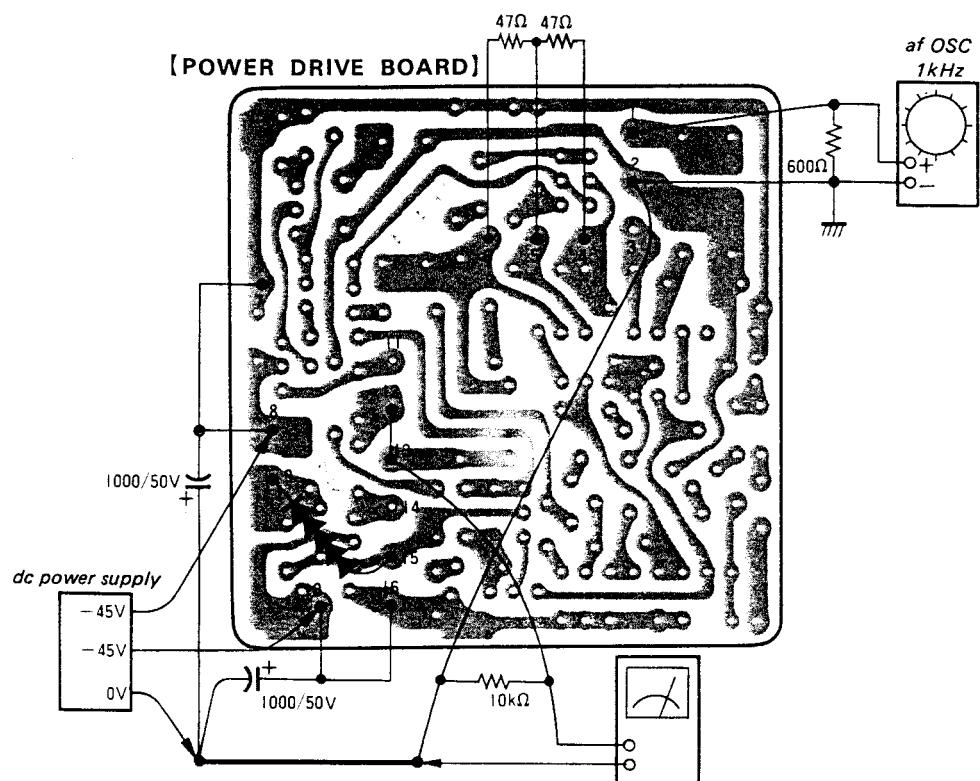
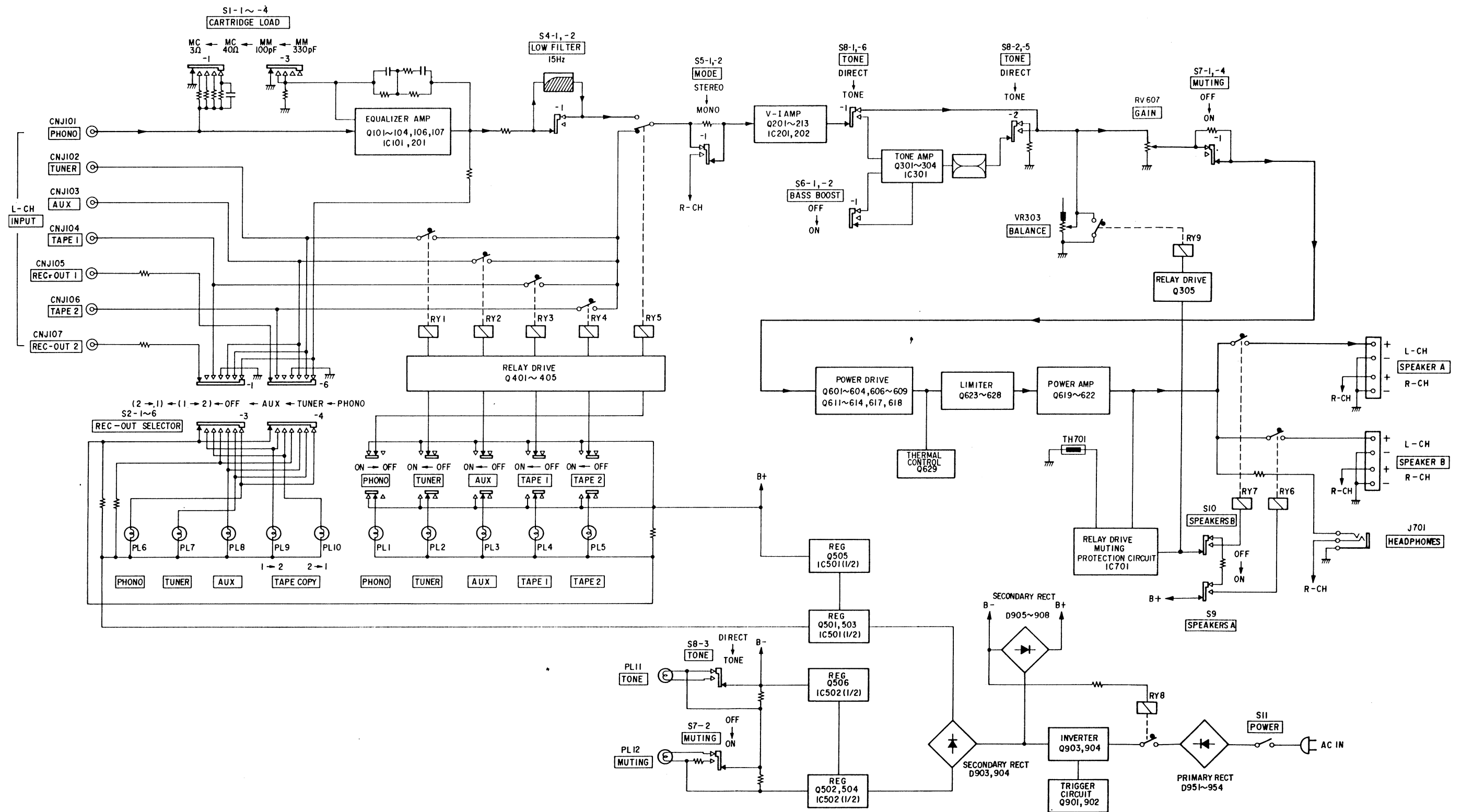


Fig. E

VOM or oscilloscope

1-2. BLOCK DIAGRAM

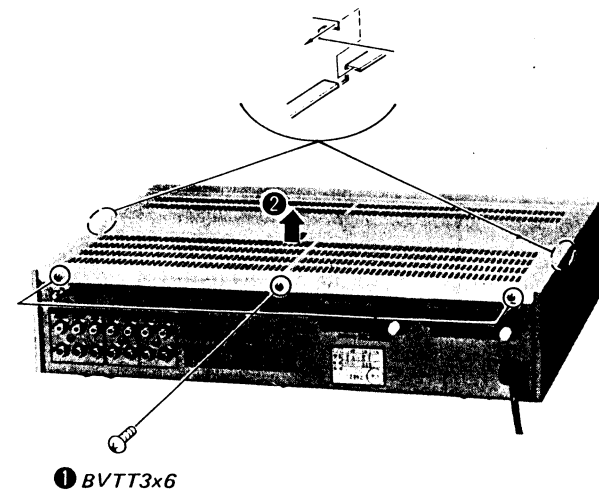


SECTION 2 DISASSEMBLY

2-1. REMOVAL

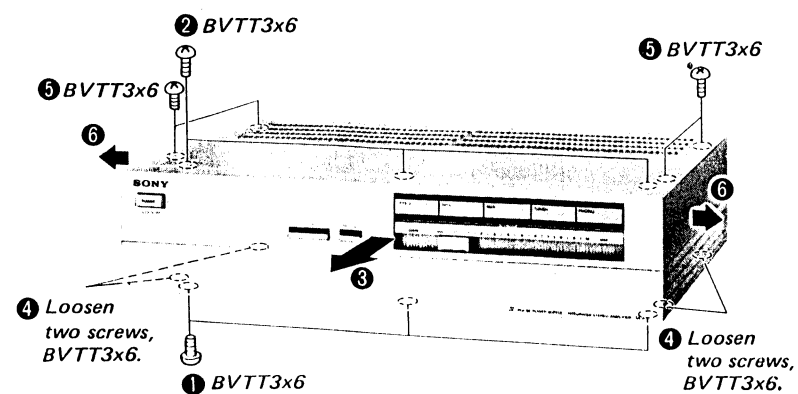
Note: Follow the disassembly procedure in the numerical order given.

Top Cover



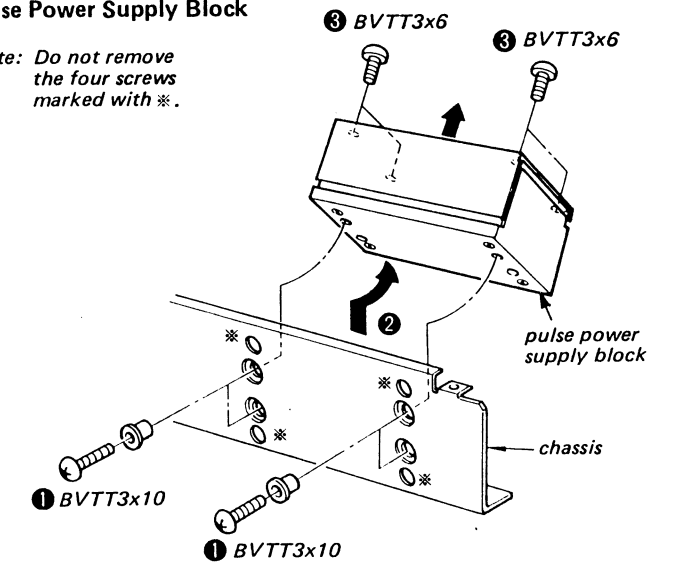
Bottom Plate

- 1-3 front panel
- 4-6 ornamental side plate

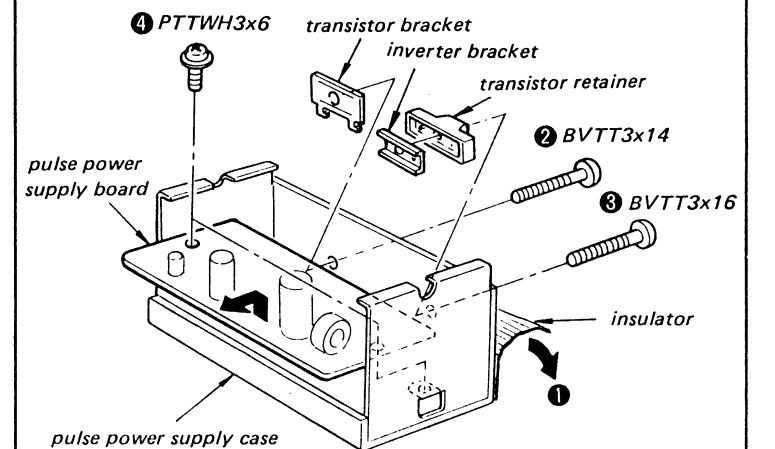


Pulse Power Supply Block

Note: Do not remove the four screws marked with *.

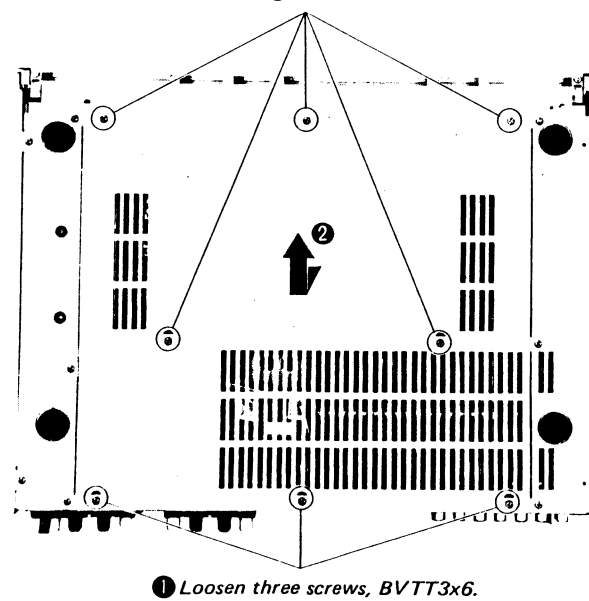


Pulse Power Supply Board

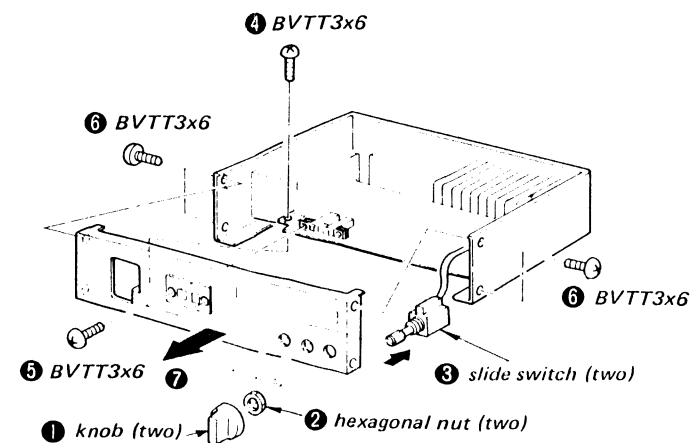


Front Panel/Ornamental Side Plate

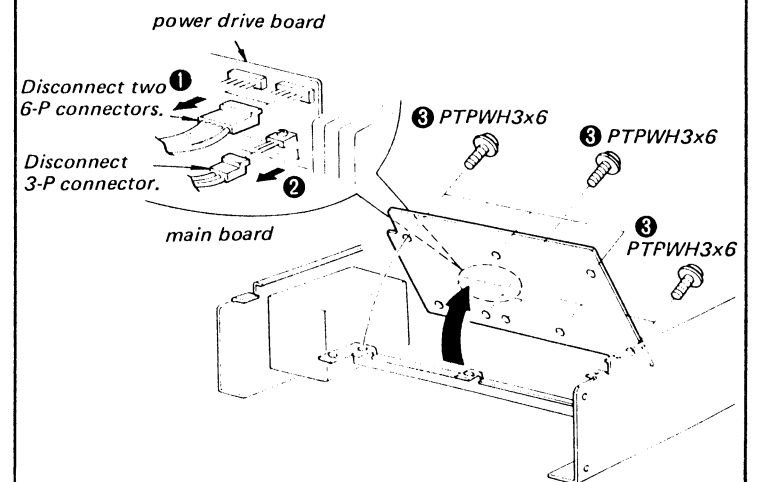
- 1 Loosen five screws, BVTT3x6.



Front Subchassis



Main Board



SECTION 3 ADJUSTMENTS

3-1. ELECTRICAL ADJUSTMENTS

Note:

1. DC BIAS and DC BALANCE adjustments should be made several minutes after the POWER switch is turned on (POWER ON.).
2. Make DC BIAS adjustment first.
3. Repeat DC BIAS and DC BALANCE adjustments two or three times.
4. After replacing the power transistors, DC BIAS and DC BALANCE adjustments should be made.
5. Perform the adjustments in the numerical order given.

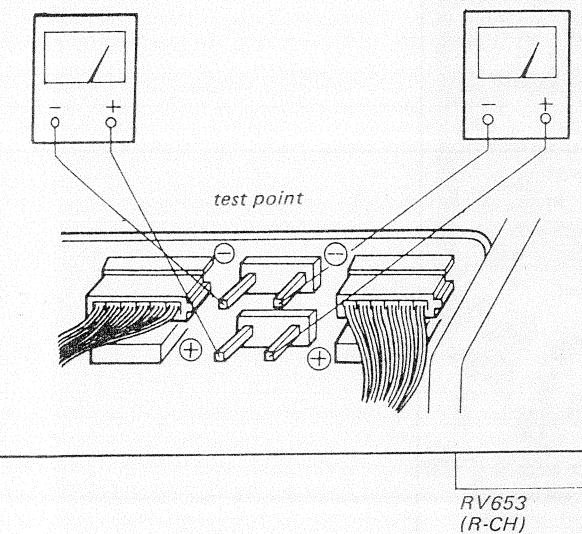
1. DC BIAS Adjustment (with no signal input)

Adjust RV653 for 5mV reading on the VOM.

Adjust RV603 for 5mV reading on the VOM.

VOM (DC range)

VOM (DC range)



4. Equalizer Amp Balance Adjustment (With no signal input)

FUNCTION Switch: PHONO
REC OUT SELECTOR Switch: PHONO
CARTRIDGE LOAD Selector: MC

1. Connect a VOM across the REC OUT terminal.
2. Adjust RV101 (L-CH) and RV151 (R-CH) for 0mV reading on the VOM.

RV101
(L-CH)

RV151
(R-CH)

test point

RV603
(L-CH)

RV602
(L-CH)

2. DC Balance Adjustment (With no signal input)

1. Connect a VOM across the SPEAKER terminal.
2. Adjust RV602 (L-CH) and RV652 (R-CH) for 0V reading on the VOM.

Note: Set the VOM high at first. After obtaining 0V reading, lower the range gradually and adjust RV602 and RV652.

RV652
(R-CH)

RV201 (L-CH)

RV251 (R-CH)

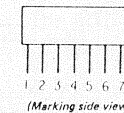
3. V-I Amp Balance Adjustment

1. Connect a VOM across the SPEAKER terminal.
2. Slide the GAIN control fully rightwards (maximum gain position).
3. Adjust RV201 (L-CH) and RV251 (R-CH) for 0mV reading on the VOM.

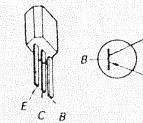
Note: As the dc-servo circuit operates in the V-I amp circuit, make this adjustment slowly (meter-stop time: 1-2 seconds)

Semiconductor Lead Layouts

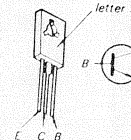
HA12002
CX550



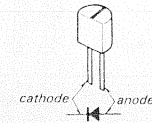
2SA1027R



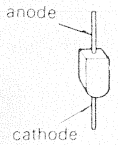
2SC2682
2SD668



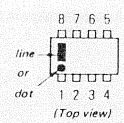
10YG1.1



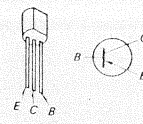
SV02



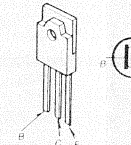
TL071CP
TP082CP



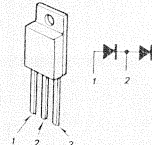
2SA1015



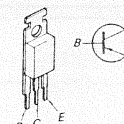
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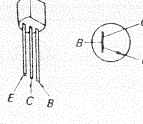
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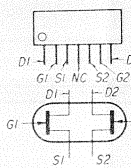
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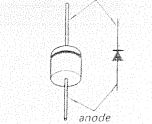
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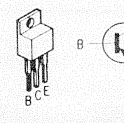
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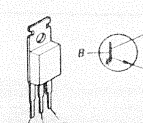
10DF2
30DL4FA



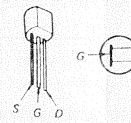
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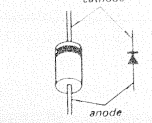
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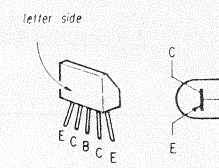
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2SK246



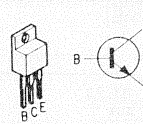
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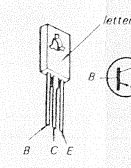
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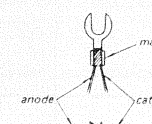
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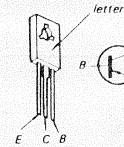
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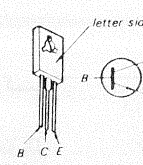
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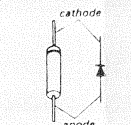
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2SA1142
2SB648



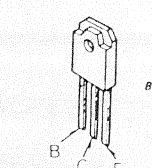
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1T22AM
HZ6A2L
HZ9A2L
HZ12A2L
HZ18A3L
EQB01-33



2SC2944



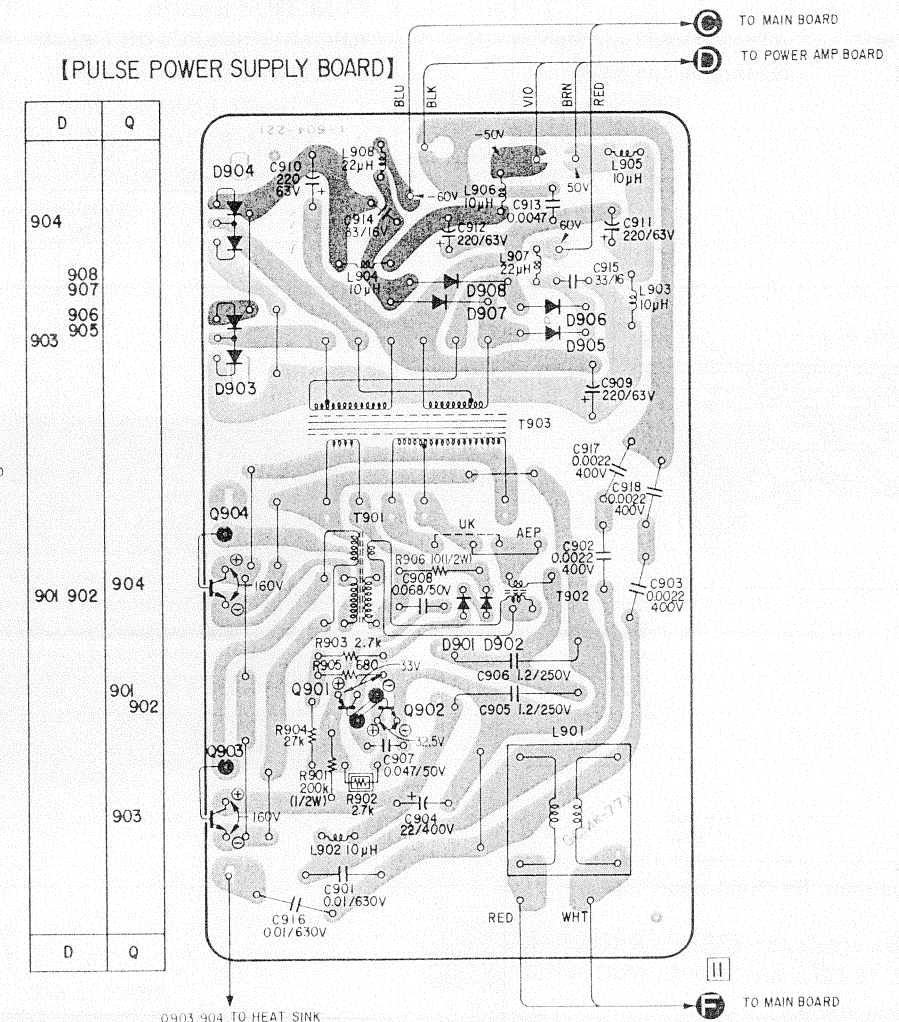
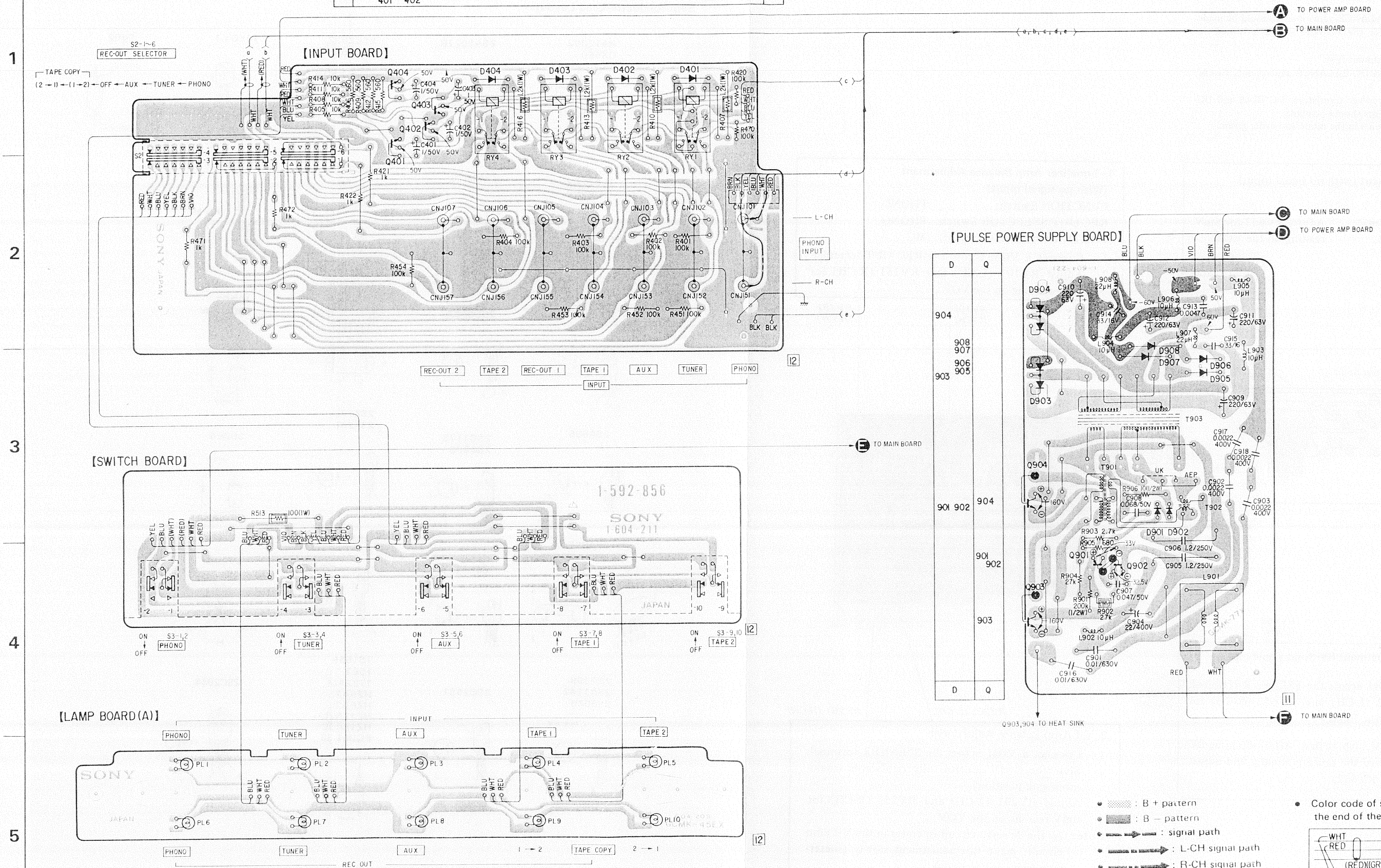
SECTION 4






DIAGRAMS

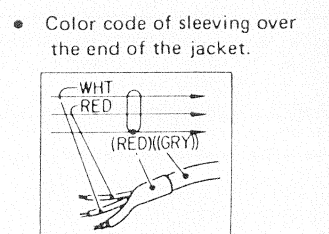
4-1. MOUNTING DIAGRAM

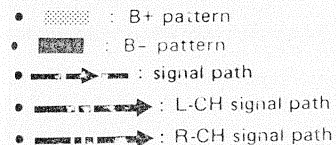
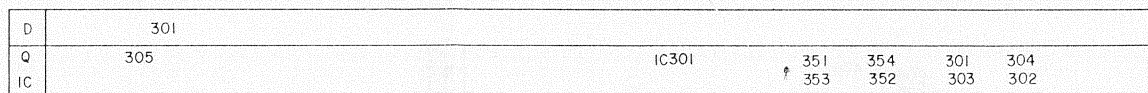
— Power Supply Section —

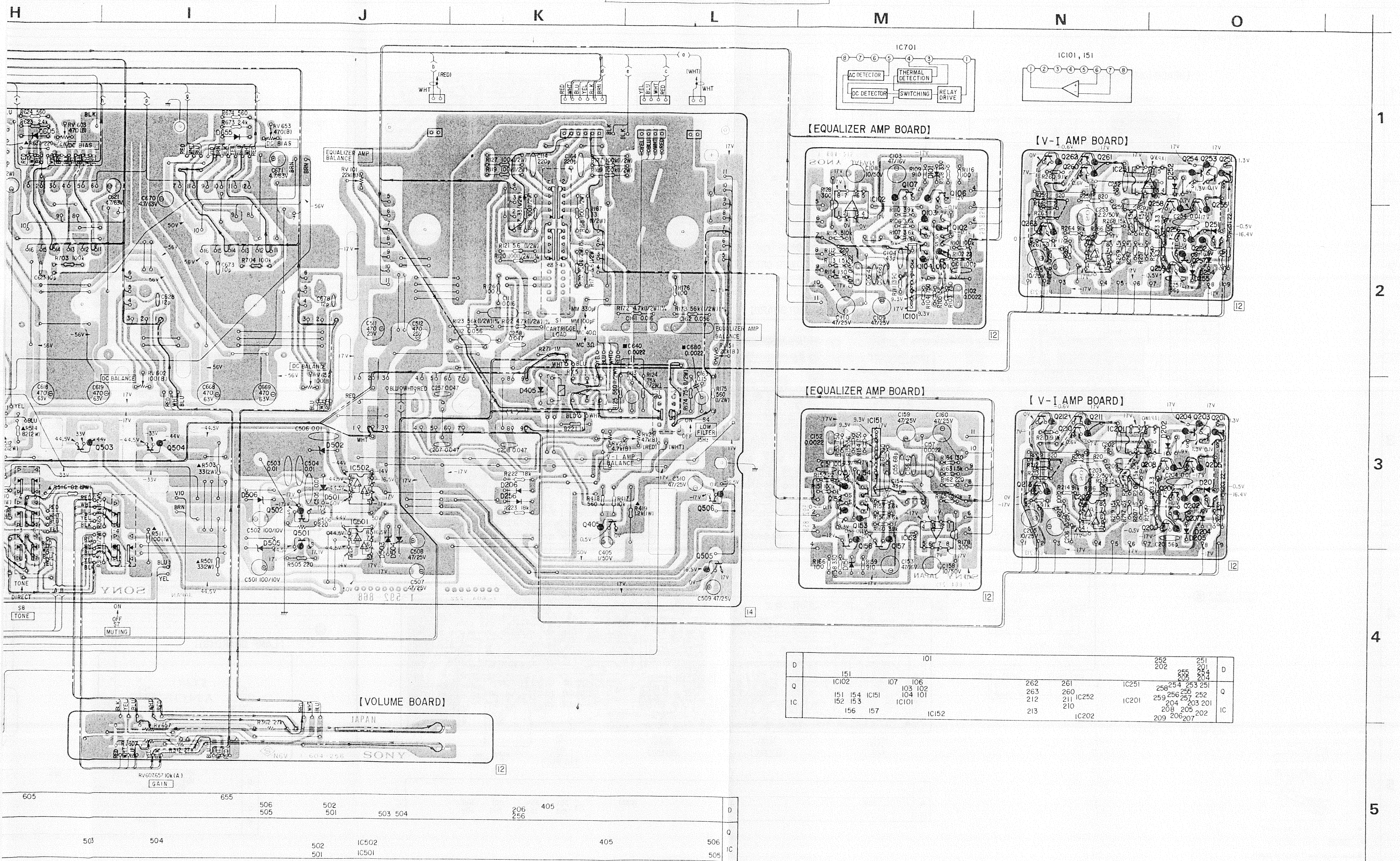
D	404	403	402	401	D
Q	404 401	403 402			Q



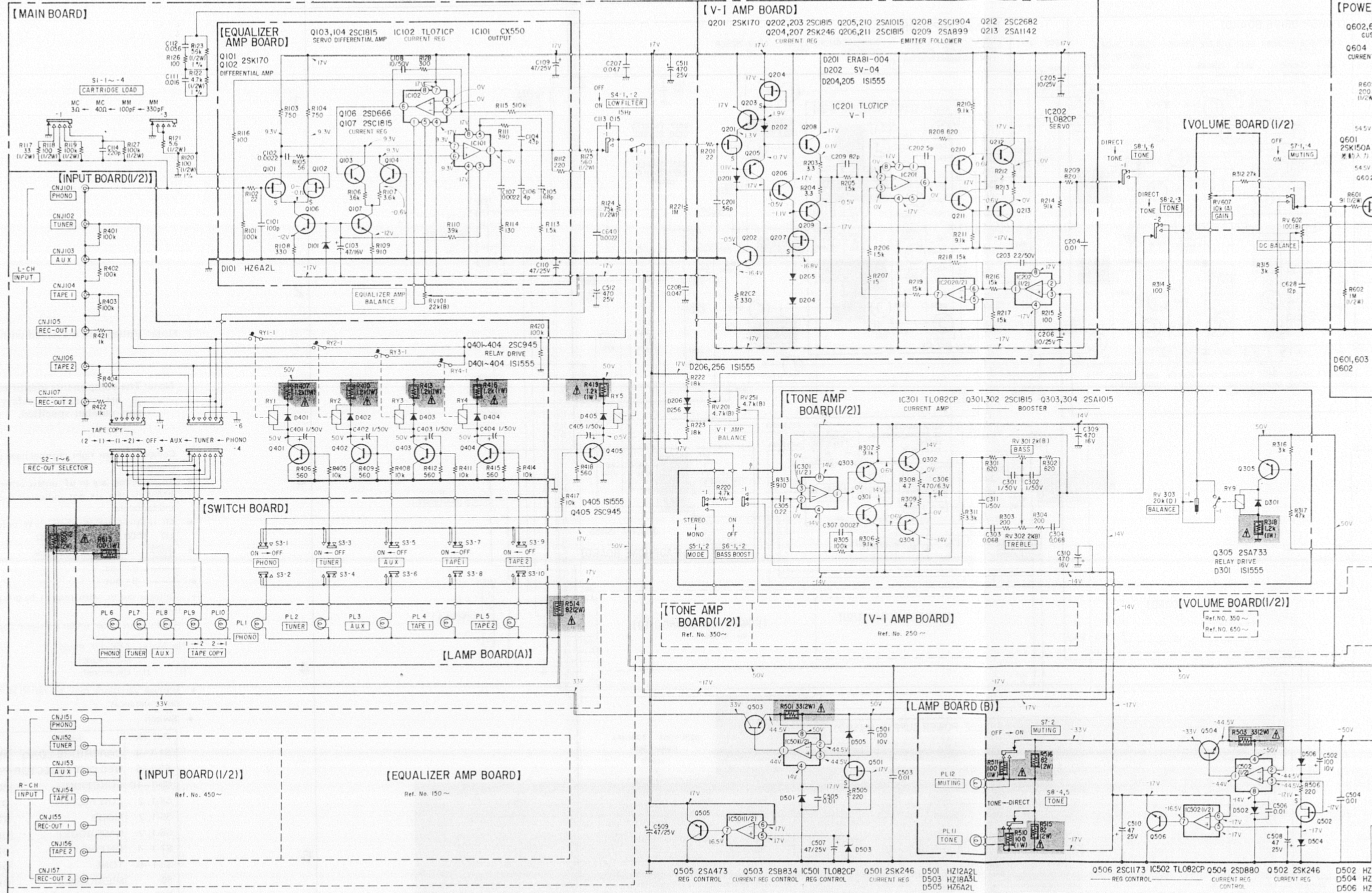
-  : B + pattern
-  : B - pattern
-  : signal path
-  : L-CH signal path
-  : R-CH signal path



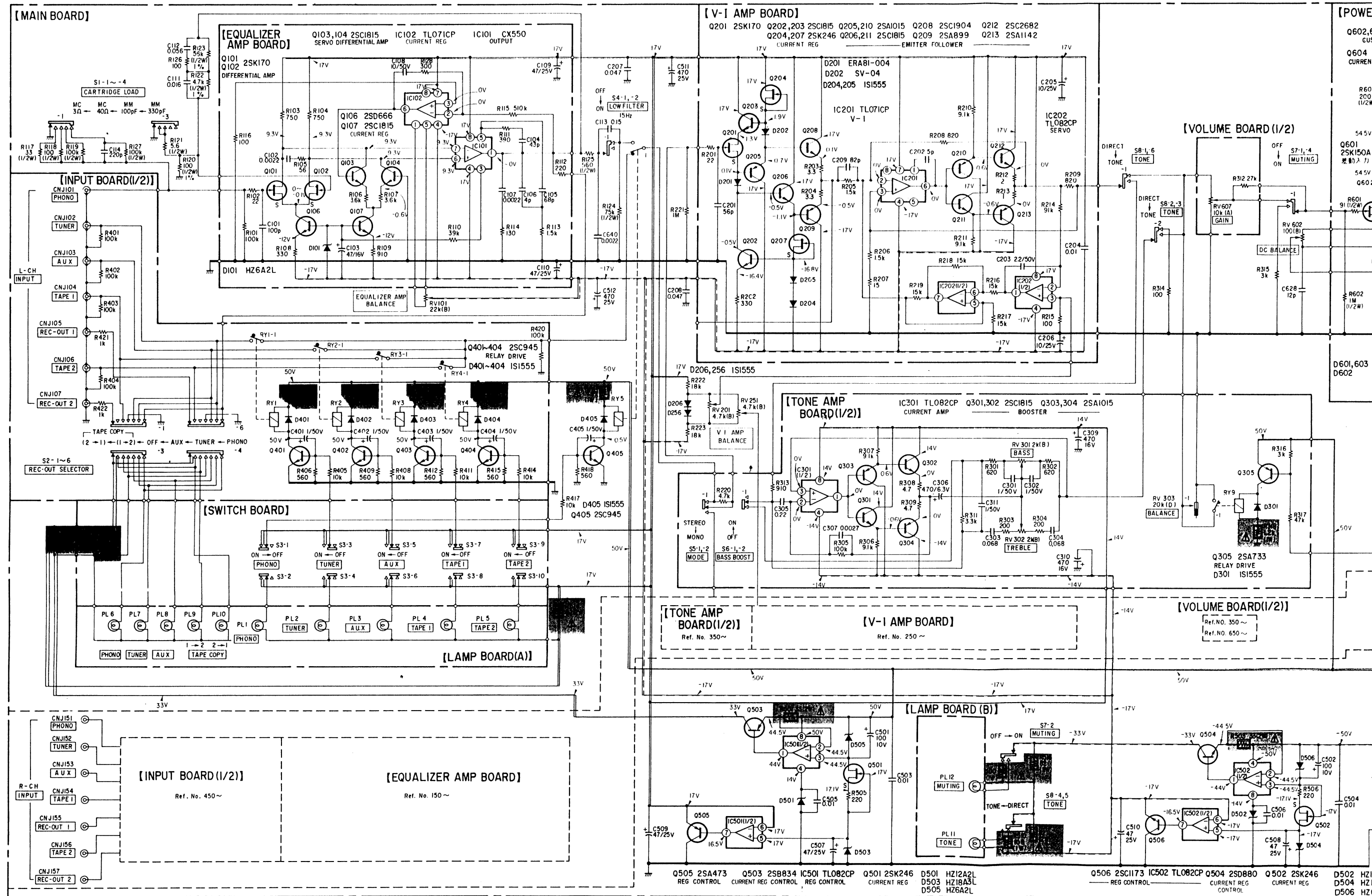


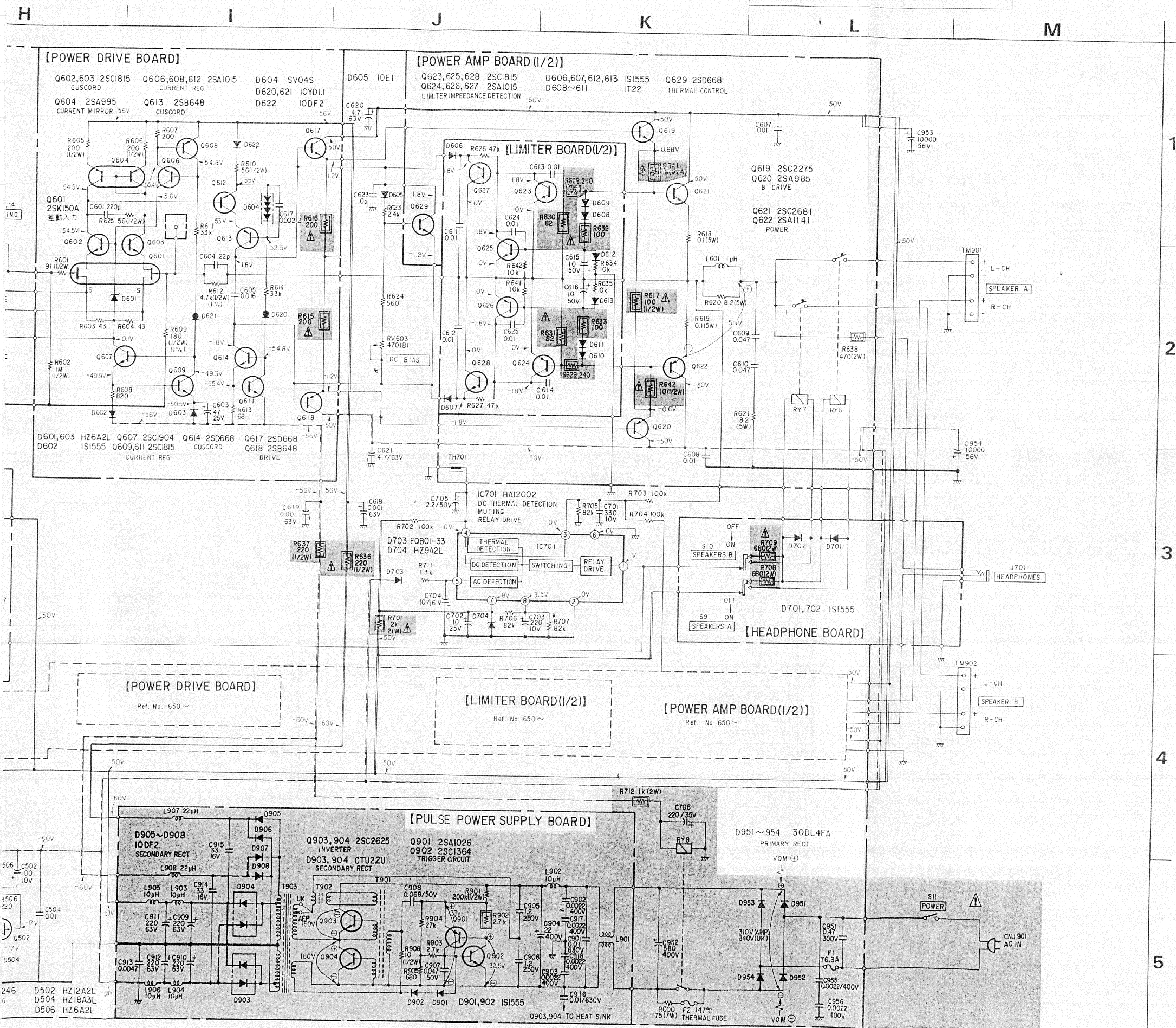


4-3. SCHEMATIC DIAGRAM







4-3. SCHEMATIC DIAGRAM





Note: Voltage are measured with a VOM (50kΩ/V).

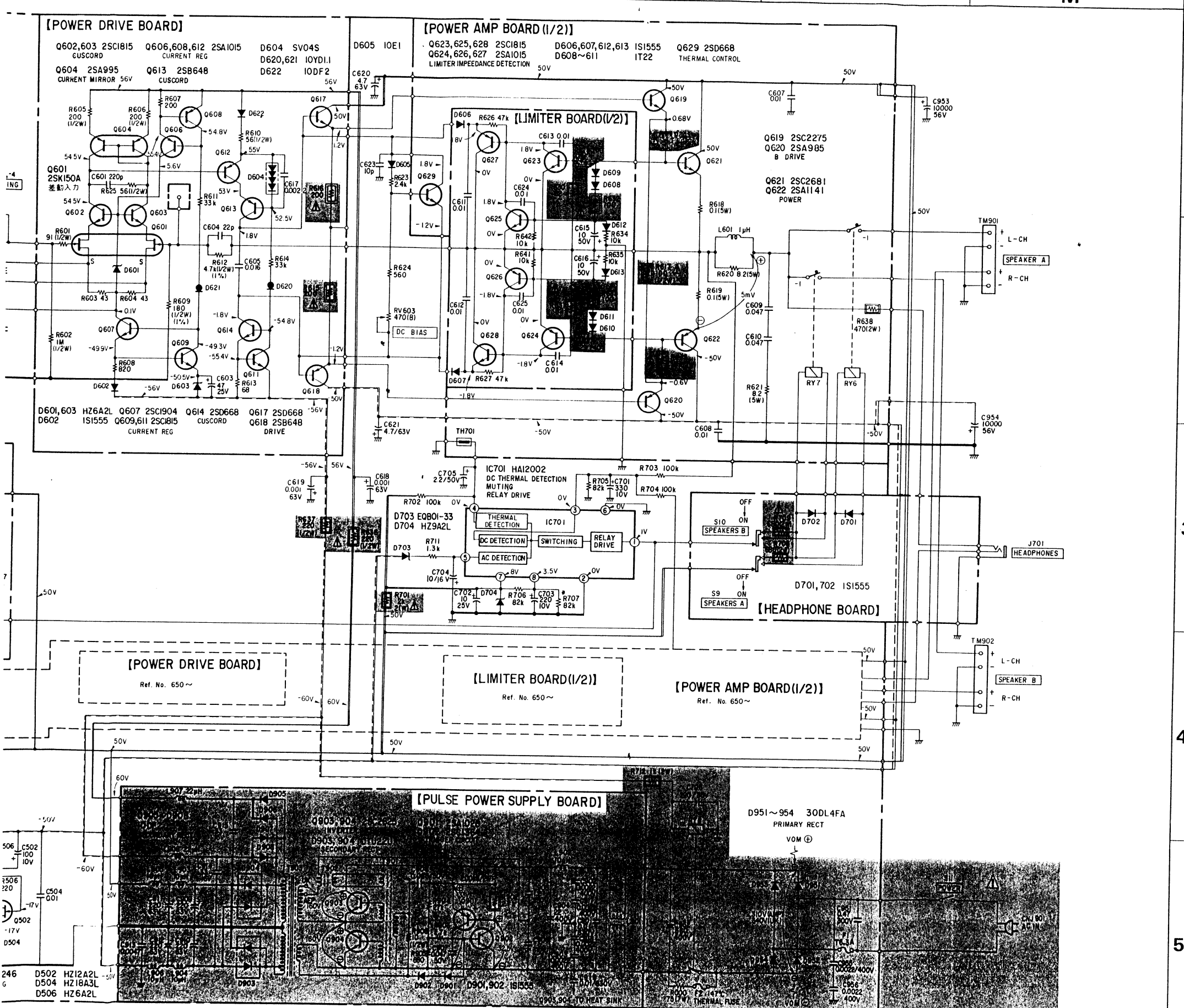
Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

- Components for right channel have same values as for left channel.
- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, $\frac{1}{4}\text{W}$ unless otherwise noted. k Ω : 1000 Ω , M Ω : 1000 k Ω
-  : nonflammable resistor.
-  : B+ bus.
-  : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions.


No Mark : AEP, UK model
 () : AEP model
 () : UK model




- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S1-1-4	CARTRIDGE LOAD	MM 330pF
S2-1-6	REC OUT SELECTOR	PHONO 4
S3-1-10	FUNCTION	PHONO
S4-1,2	LOW FILTER	OFF
S5-1,2	MODE	STEREO
S6-1,2	BASS BOOST	OFF
S7-1-4	MUTING	OFF
S8-1-6	TONE	DIRECT
S9	SPEAKERS A	OFF
S10	SPEAKERS B	OFF
S11	POWER	OFF



Note: Voltage are measured with a VOM (50k Ω /V).

Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

- Components for right channel have same values as for left channel.
- All capacitors are in μF unless otherwise noted. $\text{pF} : \mu\text{F}$ 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, $\frac{1}{2}W$ unless otherwise noted.
 $k\Omega : 1000 \Omega$, $M\Omega : 1000 k\Omega$
-  : nonflammable resistor.
-  : B+ bus.
-  : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions.

No Mark: AEP, UK model

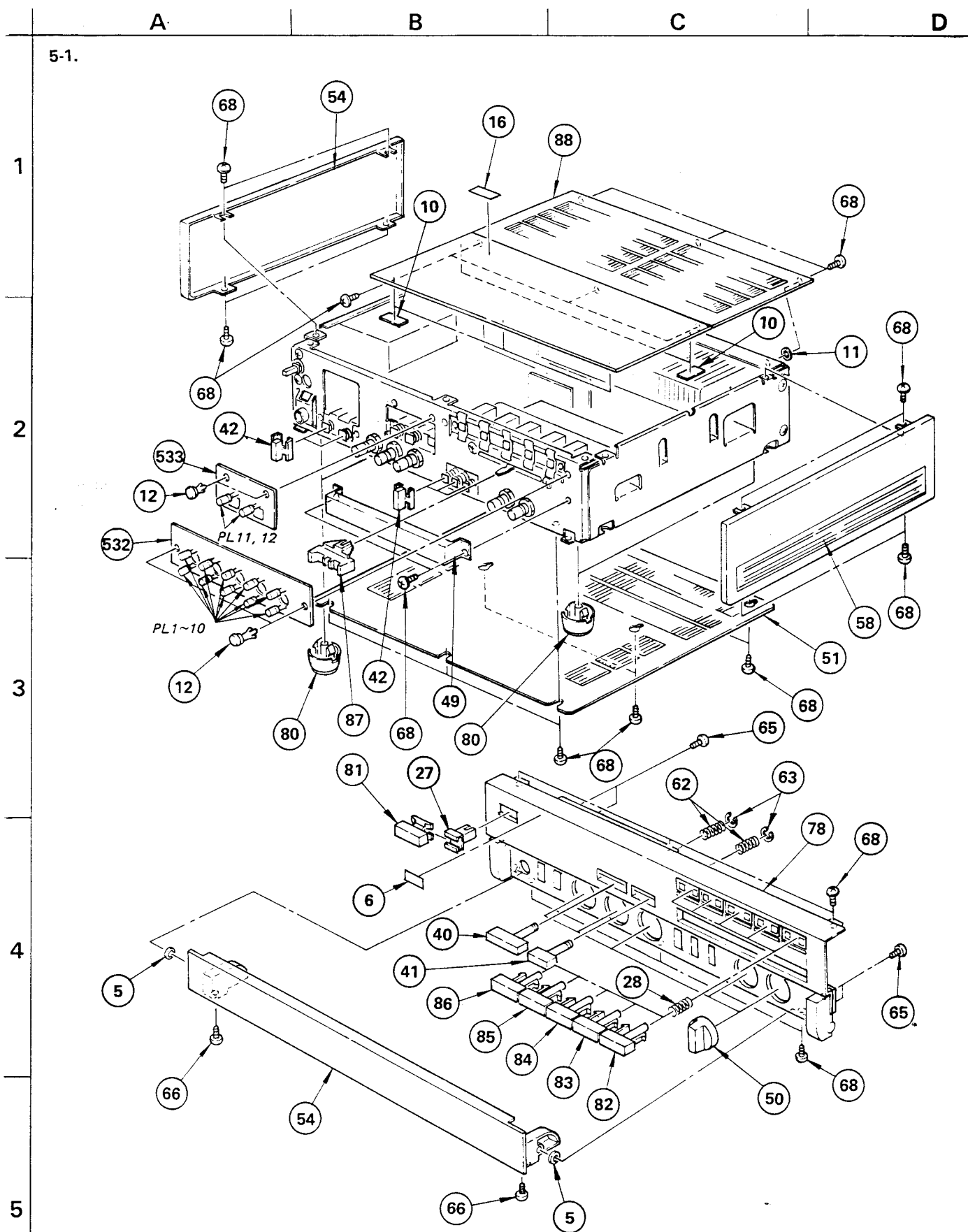
() : AEP model

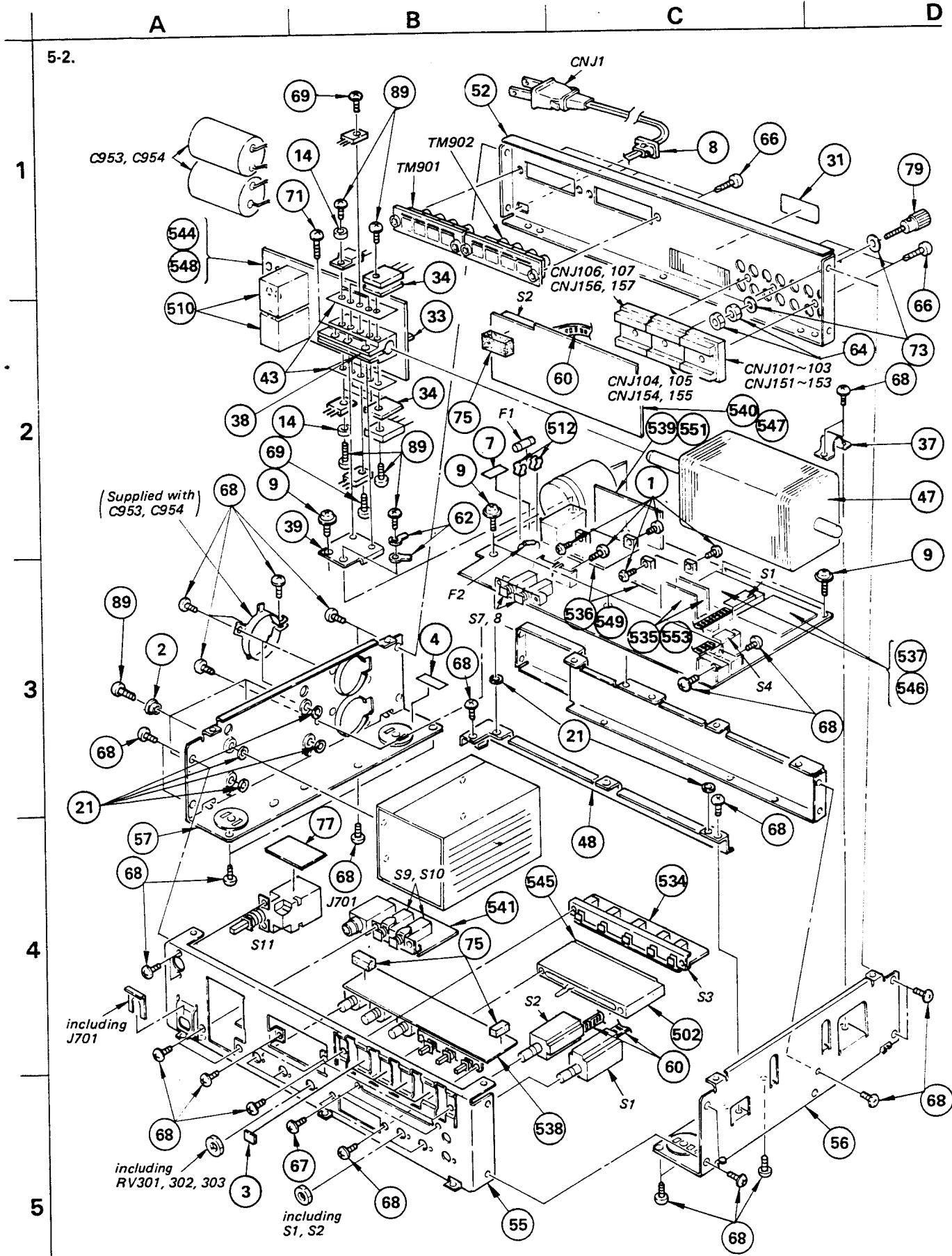
(()): UK model

- Voltage variations may be noted due to normal production tolerances.
- **Switch**

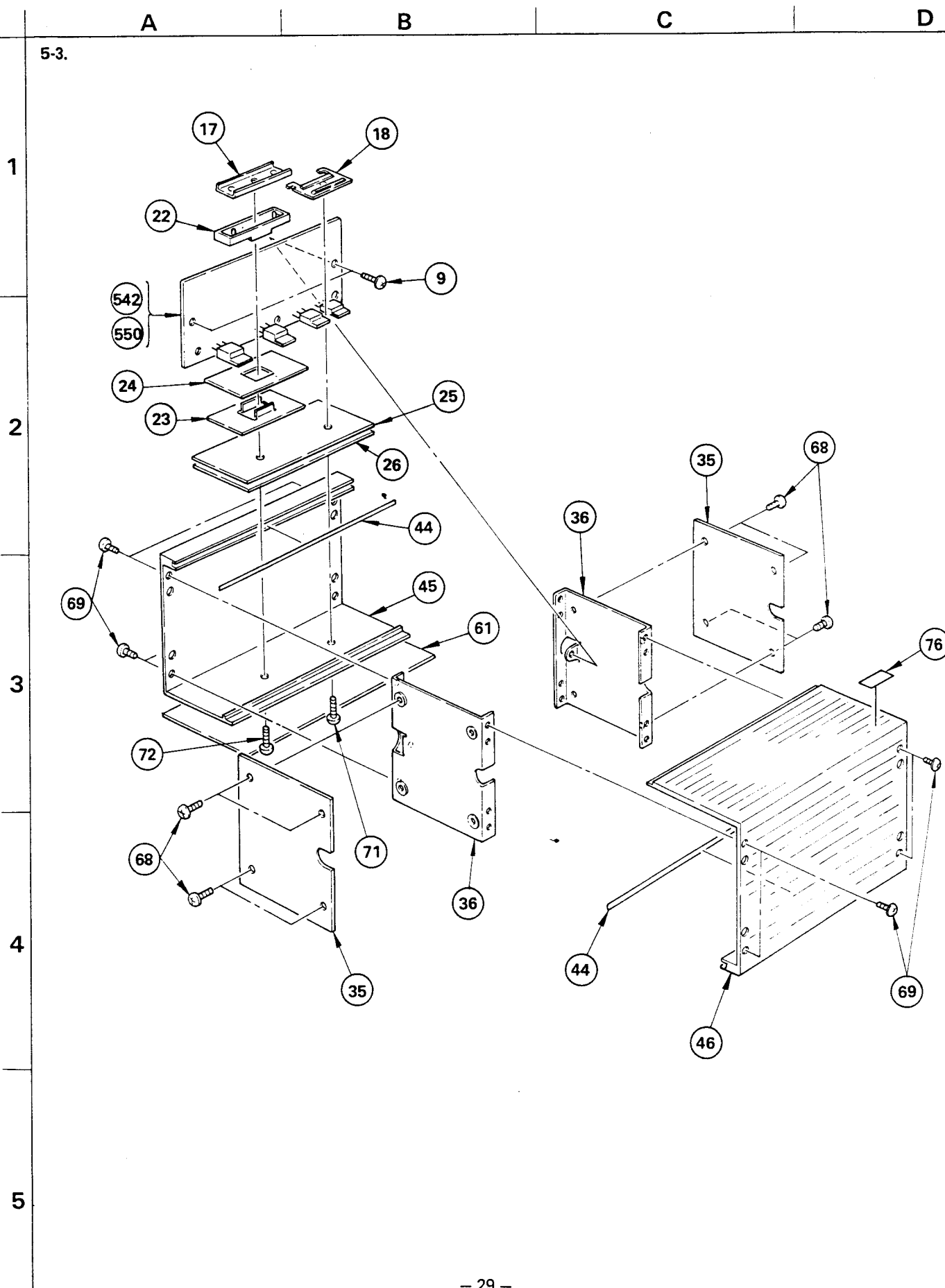
Ref. No.	Switch	Position
S1-1-4	CARTRIDGE LOAD	MM 330pF
S2-1-6	REC OUT SELECTOR	PHONO 4
S3-1-10	FUNCTION	PHONO
S4-1, 2	LOW FILTER	OFF
S5-1, 2	MODE	STEREO
S6-1, 2	BASS BOOST	OFF
S7-1-4	MUTING	OFF
S8-1-6	TONE	DIRECT
S9	SPEAKERS A	OFF
S10	SPEAKERS B	OFF
S11	POWER	OFF

SECTION 5 EXPLODED VIEWS AND PARTS LIST





5-3.



GENERAL SECTION

No.	Part No.	Description
1	2-259-121-00	SCREW, TR
2	2-832-002-00	BUSHING, INSULATING
3	3-572-759-00	SUPPORT
4	3-701-030-00	LABEL, SERIAL NUMBER
5	3-701-439-11	WASHER
6	3-701-690-00	(UK)....LABEL TACK (MADE IN JAPAN)
7	3-701-948-22	LABEL, FUSE
9	3-703-249-01	SCREW, S TIGHT, +PTTWH 3X6
10	3-831-441-XX	CUSHION, SPEAKER
11	3-848-223-00	WASHER (A), FIBER
12	4-812-134-11	RIVET, NYLON, 3.5
13	4-835-639-00	PLATE, GROUND
14	4-857-425-00	BUSHING, O3P INSULATING
15	
16	4-861-045-00	LABEL, CAUTION
17	4-862-237-00	BRACKET, INVERTER
18	4-862-238-00	BRACKET, TRANSISTOR
19	4-863-132-00	HEAT SINK (SMALL)
20	4-866-080-00	HEAT SINK
21	4-866-147-11	SPACER
22	4-866-315-00	RETAINER, TRANSISTOR
23	4-866-316-00	HEAT SINK
24	4-866-317-00	SARCON, TRANSISTOR
25	4-866-318-01	SERCON, HEAT SINK, CHASSIS
26	4-866-318-11	SERCON, HEAT SINK, CHASSIS
27	4-866-342-00	JOINT (B), KNOB
28	4-866-652-00	SPRING, COMPRESSION
29	4-866-654-00	HEAT SINK (S)
30	4-871-324-00	ESCUTCHEON, POWER KNOB
31	4-873-604-00	LABEL, MODEL NUMBER (AEP)
32	4-873-605-00	(UK)....LABEL, MODEL NUMBER
33	4-873-609-00	BOARD (C), TERMINAL
34	4-873-611-00	HEAT SINK
35	4-873-701-00	LID, CASE
36	4-873-702-00	BRACKET, CHASSIS
37	4-873-703-00	RETAINER, PIPE
38	4-873-704-00	BLOCK
39	4-873-705-00	RETAINER, BLOCK
40	4-873-711-00	KNOB (A)
41	4-873-712-00	KNOB (B)
42	4-873-717-00	KNOB, PUSH
43	4-873-720-00	INSULATOR
44	4-873-722-00	PLATE, SHIELD
45	4-873-728-00	CASE (A)

GENERAL SECTION

No.	Part No.	Description
46	4-873-729-00	CASE (B)
47	4-873-730-00	HEAT SINK
48	4-873-731-00	CHANNEL (A)
49	4-873-735-00	PLATE, BACK
50	4-873-736-00	KNOB (DIA. 22)
51	4-873-738-00	PLATE, BOTTOM
52	4-873-739-01	PLATE, JACK
53	4-873-741-00	CHANNEL (B)
54	4-873-744-11	LID, PANEL
55	4-873-746-00	SUBCHASSIS, FRONT
56	4-873-747-00	PLATE, SIDE, RIGHT
57	4-873-748-00	PLATE, SIDE, LEFT
58	4-873-749-00	PLATE, SIDE, ORNAMENTAL (RIGHT)
59	4-873-750-00	PLATE, SIDE, ORNAMENTAL (LEFT)
60	4-873-753-00	BAND, JOINT
61	4-873-759-00	TAPE, INSULATING, PPS
62	7-623-508-01	LUG, 3
63	7-624-105-04	STOP RING 2.3, TYPE -E
64	7-684-023-04	N 3, TYPE 2
65	7-685-134-11	SCREW +P 2.6X8 TYPE2 NON-SLIT
66	7-685-647-11	SCREW +BVTP 3X10 TYPE2 N-S
67	7-685-870-01	SCREW -BVTT 3X5 (S)
68	7-685-871-01	SCREW -BVTT 3X6 (S)
69	7-685-872-01	SCREW -BVTT 3X8 (S)
70	7-685-874-01	SCREW -BVTT 3X2 (S)
71	7-685-875-01	SCREW -BVTT 3X14 (S)
72	7-685-876-01	SCREW -BVTT 3X16 (S)
73	7-688-003-11	W 3, MIDDLE
74	9-911-840-XX	RUBBER (B)
75	9-911-843-XX	CUSHION, FLYWHEEL
76	7-685-873-01	SCREW -BVTT 3X10 (S)
77	9-911-863-XX	INSULATOR
78	A-4322-312-A	PANEL ASSY
79	X-4854-207-0	TERMINAL ASSY, GROUND
80	X-4864-303-0	FOOT ASSY
81	X-4873-701-0	KNOB ASSY, POWER
82	X-4873-702-0	KNOB ASSY, PHONO
83	X-4873-703-0	KNOB ASSY, TUNER
84	X-4873-704-0	KNOB ASSY, AUX
85	X-4873-705-0	KNOB ASSY, TAPE 1
86	X-4873-706-0	KNOB ASSY, TAPE 2
87	X-4873-707-0	KNOB ASSY, VR
88	X-4873-709-0	BOARD ASSY, TOP

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

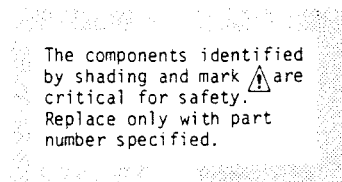
CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.
- MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable



COILS

- MMH : mH, UH : μH

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
101	3-701-360-00	(AEP)...LABEL, TACK
102	3-701-630-00	BAG, POLYETHYLENE
103	3-702-607-00	(UK)...LABEL, GUARANTY
104	3-783-442-11	MANUAL, INSTRUCTION
105	4-858-078-00	SHEET, PROTECTION
106	4-873-608-00	CUSHION
107	4-873-612-00	CUSHION, SUPPORT
108	4-873-614-00	INDIVIDUAL CARTON

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	
502	1-228-109-00	RES. VAR. SLIDE 10K
503	▲ 1-247-123-00	RES. CARBON 470
504	● 1-508-809-00	BASE POST (14MM) 2P
505	● 1-508-810-00	14MM BASE POST
506	● 1-508-829-12	H TYPE BASE POST
507	● 1-508-830-12	H TYPE BASE POST
508	● 1-508-831-12	H TYPE BASE POST
509	● 1-508-833-12	H TYPE BASE POST
510	1-515-403-00	RELAY
511	▲ 1-532-325-00	FUSE, TIME-LAG
512	1-533-131-00	HOLDER, FUSE
513	● 1-535-115-00	TERMINAL
514	● 1-535-116-00	TERMINAL
515	● 1-535-117-00	TERMINAL
516	● 1-535-120-00	TERMINAL
517	● 1-535-133-00	BASE POST 14MM (10MM PITCH)
518	● 1-535-139-00	BASE POST 19MM (10MM PITCH)
519	1-536-354-00	POST PIN
520	1-553-596-00	SWITCH, ROTARY SLIDE (REC OUT SELECTOR)
521	1-553-622-00	SWITCH, ROTARY SLIDE (CARTRIDGE LOAD)
522	● 1-560-060-00	PIN, CONNECTOR 2P
523	● 1-560-062-00	PIN, CONNECTOR 4P
524	● 1-560-064-00	PIN, CONNECTOR 6P
525	● 1-560-065-00	PIN, CONNECTOR 8P
526	● 1-560-200-00	BASE POST, MCD CONNECTOR 2P
527	● 1-560-332-00	PIN, CONNECTOR 7P
528	● 1-561-296-00	SOCKET, CONNECTOR (3P)
529	● 1-561-297-00	SOCKET, CONNECTOR (7P)
530	● 1-561-350-00	SOCKET, CONNECTOR 4P
531	● 1-561-471-00	SOCKET, CONNECTOR 6P
532	● 1-604-209-00	PC BOARD, LAMP (A)
533	● 1-604-210-00	PC BOARD, LAMP (B)
534	● 1-604-211-00	PC BOARD, SWITCH
535	● 1-604-213-00	PC BOARD, V-I AMP
536	● 1-604-214-00	PC BOARD, POWER DRIVE
537	● 1-604-215-00	PC BOARD, EQUALIZER AMP
538	● 1-604-216-00	PC BOARD, TONE AMP
539	● 1-604-217-00	PC BOARD, LIMITER
540	● 1-604-218-00	PC BOARD, INPUT
541	● 1-604-219-00	PC BOARD, HEADPHONE
542	● 1-604-221-00	PC BOARD, PULSE POWER SUPPLY
543	● 1-604-222-00	PC BOARD, MAIN
544	● 1-604-223-00	PC BOARD, POWER AMP
545	● 1-604-256-00	PC BOARD, VOLUME

NOTE:

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- Items marked "●" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
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CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.

COILS

- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No.	Part No.	Description
546	▲;A-4358-088-A	MOUNTED PCB, EQUALIZER AMP
547	▲;A-4382-070-A	MOUNTED PCB, INPUT
548	▲;A-4388-247-A	MOUNTED PCB, AMPLIFIER, POWER
549	▲;A-4388-258-A	MOUNTED PCB, POWER DRIVE
550	▲;A-4394-254-A	MOUNTED PCB, PULSE POWER SUPPLY
551	▲;A-4409-415-A	MOUNTED PCB, LIMITER
552	▲;A-4409-419-A	MOUNTED PCB, AMP TONE
553	▲;A-4409-501-A	MOUNTED PCB, V-I AMPLIFIER
554	▲;A-4409-513-A	MOUNTED PCB, MAIN
C101	1-107-300-00	MICA 100PF 5% 100V
C111	1-104-141-00	POLYSTYRENE 0.016MF 1% 125V
C112	1-104-142-00	POLYSTYRENE 0.056MF 1% 125V
C114	1-107-308-00	MICA 220PF 5% 100V
C161	1-104-141-00	POLYSTYRENE 0.016MF 1% 125V
C162	1-104-142-00	POLYSTYRENE 0.056MF 1% 125V
C164	1-107-308-00	MICA 220PF 5% 100V
C203	1-123-829-00	ELECT 2.2MF 20% 50V
C205	1-123-356-00	ELECT 10MF 20% 25V
C206	1-123-356-00	ELECT 10MF 20% 25V
C209	1-107-298-00	MICA 32PF 5% 100V
C301	1-123-828-00	ELECT 1MF 20% 50V
C302	1-123-828-00	ELECT 1MF 20% 50V
C311	1-123-828-00	ELECT 1MF 20% 50V
C351	1-123-828-00	ELECT 1MF 20% 50V
C352	1-123-828-00	ELECT 1MF 20% 50V
C361	1-123-828-00	ELECT 1MF 20% 50V
C401	1-123-352-00	ELECT 1MF 20% 50V
C402	1-123-352-00	ELECT 1MF 20% 50V
C403	1-123-352-00	ELECT 1MF 20% 50V
C404	1-123-352-00	ELECT 1MF 20% 50V
C405	1-123-352-00	ELECT 1MF 20% 50V
C511	1-123-336-00	ELECT 470MF 20% 25V
C512	1-123-336-00	ELECT 470MF 20% 25V
C601	1-107-310-00	MICA 220PF 5% 500V
C605	1-104-152-00	POLYSTYRENE 0.016MF 10% 125V
C609	1-130-688-00	FILM 0.047MF 5% 100V
C610	1-130-688-00	FILM 0.047MF 5% 100V
C618	1-123-262-00	ELECT 1000MF 20% 63V
C619	1-123-262-00	ELECT 1000MF 20% 63V
C623	1-107-279-00	MICA 10PF 0.5PF 100V
C628	1-107-280-00	MICA 12PF 5% 100V
C640	1-108-230-00	MYLAR 0.0022MF 10% 50V
C659	1-130-688-00	FILM 0.047MF 5% 100V
C660	1-130-688-00	FILM 0.047MF 5% 100V
C668	1-123-262-00	ELECT 1000MF 20% 63V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C669	1-123-262-00	ELECT 1000MF 20% 63V
C673	1-107-279-00	MICA 10PF 0.5PF 100V
C678	1-107-280-00	MICA 12PF 5% 100V
C690	1-108-230-00	MYLAR 0.0022MF 10% 50V
C702	1-123-262-00	ELECT 10MF 20% 25V
C703	1-123-352-00	ELECT 220MF 20% 10V
C704	1-123-352-00	ELECT 10MF 20% 16V
C705	1-123-352-00	ELECT 2.2MF 20% 50V
C706	1-123-352-00	ELECT 220MF 20% 35V
C901	▲.1-130-141-00	MYLAR 0.01MF 20% 630V
C902	▲.1-161-734-00	CERAMIC 0.0022MF 20% 400V
C903	▲.1-161-734-00	CERAMIC 0.0022MF 20% 400V
C904	▲.1-123-402-00	ELECT 22MF 20% 400V
C905	▲.1-130-358-00	FILM 1.2MF 10% 250V
C906	▲.1-130-358-00	FILM 1.2MF 10% 250V
C907	▲.1-108-246-00	MYLAR 0.047MF 10% 50V
C908	▲.1-108-249-00	MYLAR 0.068MF 10% 50V
C909	▲.1-123-523-00	ELECT 220MF 20% 63V
C910	▲.1-123-523-00	ELECT 220MF 20% 63V
C911	▲.1-123-523-00	ELECT 220MF 20% 63V
C912	▲.1-123-523-00	ELECT 220MF 20% 63V
C913	▲.1-108-234-00	MYLAR 0.0047MF 10% 50V
C914	▲.1-123-893-00	ELECT 33MF 20% 16V
C915	▲.1-123-893-00	ELECT 33MF 20% 16V
C916	▲.1-130-141-00	MYLAR 0.01MF 20% 630V
C917	▲.1-161-734-00	CERAMIC 0.0022MF 20% 400V
C918	▲.1-161-734-00	CERAMIC 0.0022MF 20% 400V
C951	▲.1-130-701-00	FILM 0.047MF 20% 300V
C952	▲.1-125-271-00	ELECT(BLOCK) 560MF 20% 400V
C953	1-125-248-00	ELECT 10000MF 20% 55V
C954	1-125-248-00	ELECT 10000MF 20% 55V
C955	▲.1-161-734-00	CERAMIC 0.0022MF 20% 400V
CNJ1	▲.1-555-795-00	(AEP)....CORD, POWER
CNJ1	▲.1-551-884-00	(UK)....CORD, POWER
CNJ101	1-507-701-00	JACK, PIN 6P
CNJ102	1-507-701-00	JACK, PIN 6P
CNJ103	1-507-701-00	JACK, PIN 6P
CNJ104	1-507-700-00	JACK, PIN 4P
CNJ105	1-507-700-00	JACK, PIN 4P
CNJ106	1-507-700-00	JACK, PIN 4P
CNJ107	1-507-700-00	JACK, PIN 4P
CNJ151	1-507-701-00	JACK, PIN 6P
CNJ152	1-507-701-00	JACK, PIN 6P
CNJ153	1-507-701-00	JACK, PIN 6P
CNJ154	1-507-700-00	JACK, PIN 4P
CNJ155	1-507-700-00	JACK, PIN 4P

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (▲-▲▲▲-▲▲-XX or ▲-▲▲▲-▲▲-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in pF. Common capacitors are omitted. Refer to the following lists for their part numbers.
- MF:μF, PF:pF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.

COILS

- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No.	Part No.	Description
CNJ156	1-507-700-00	JACK, PIN 4P
CNJ157	1-507-700-00	JACK, PIN 4P
D101	8-719-910-62	DIODE HZ6A2L
D151	8-719-910-62	DIODE HZ6A2L
D201	8-719-981-01	DIODE ERA81-004
D202	8-719-300-02	DIODE SV02
D204	8-719-815-55	DIODE 1S1555
D205	8-719-815-55	DIODE 1S1555
D206	8-719-815-55	DIODE 1S1555
D251	8-719-981-01	DIODE ERA81-004
D252	8-719-300-02	DIODE SV02
D254	8-719-815-55	DIODE 1S1555
D255	8-719-815-55	DIODE 1S1555
D256	8-719-815-55	DIODE 1S1555
D301	8-719-815-55	DIODE 1S1555
D401	8-719-815-55	DIODE 1S1555
D402	8-719-815-55	DIODE 1S1555
D403	8-719-815-55	DIODE 1S1555
D404	8-719-815-55	DIODE 1S1555
D405	8-719-815-55	DIODE 1S1555
D501	8-719-910-22	DIODE HZ12A2L
D502	8-719-910-22	DIODE HZ12A2L
D503	8-719-910-83	DIODE HZ18A3L
D504	8-719-910-83	DIODE HZ18A3L
D505	8-719-910-62	DIODE HZ6A2L
D506	8-719-910-62	DIODE HZ6A2L
D601	8-719-910-62	DIODE HZ6A2L
D602	8-719-815-55	DIODE 1S1555
D603	8-719-910-62	DIODE HZ6A2L
D604	8-719-300-11	DIODE SV04S
D605	8-719-200-02	DIODE 10E2
D606	8-719-815-55	DIODE 1S1555
D607	8-719-815-55	DIODE 1S1555
D608	8-719-422-21	DIODE 1T22AM
D609	8-719-422-21	DIODE 1T22AM
D610	8-719-422-21	DIODE 1T22AM
D611	8-719-422-21	DIODE 1T22AM
D612	8-719-815-55	DIODE 1S1555
D613	8-719-815-55	DIODE 1S1555
D620	8-719-201-11	DIODE 10YG1.1
D621	8-719-201-11	DIODE 10YG1.1
D622	8-719-210-12	DIODE 10DF2
D651	8-719-910-62	DIODE HZ6A2L
D652	8-719-815-55	DIODE 1S1555
D653	8-719-910-62	DIODE HZ6A2L
D654	8-719-300-11	DIODE SV04S

D655 to D954 : See page 36.

NOTE:

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- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (1-555-555-XX or 1-555-555-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μ F. Common capacitors are omitted. Refer to the following lists for their part numbers. MF: μ F, PF: μ PF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

ELECTRICAL PARTS

Ref.No.	Part No.	Description
F1	▲ 1-532-325-00	FUSE, TIME-LAG 6.3A
F2	▲ 1-532-556-00	FUSE, TEMPERATURE
IC101	8-759-305-50	IC CX550
IC102	8-759-907-01	IC TL071CP
IC151	8-759-305-50	IC CX550
IC152	8-759-907-01	IC TL071CP
IC201	8-759-907-01	IC TL071CP
IC202	8-759-990-82	IC TL082CP
IC251	8-759-907-01	IC TL071CP
IC252	8-759-990-82	IC TL082CP
IC301	8-759-990-82	IC TL082CP
IC501	8-759-990-82	IC TL082CP
IC502	8-759-990-82	IC TL082CP
IC701	8-759-320-02	IC HA12002
J701	1-507-669-00	JACK
L601	▲ 1-422-031-00	COIL, AIRCORE 1UH
L651	▲ 1-422-031-00	COIL, AIRCORE 1UH
L901	▲ 1-421-479-00	FILTER, LINE
L902	▲ 1-421-461-00	COIL, CHOKE 10UH
L903	▲ 1-421-461-00	COIL, CHOKE 10UH
L904	▲ 1-421-461-00	COIL, CHOKE 10UH
L905	▲ 1-421-461-00	COIL, CHOKE 10UH
L906	▲ 1-421-461-00	COIL, CHOKE 10UH
L907	▲ 1-407-161-XX	MICRO INDUCTOR 22UH
L908	▲ 1-407-161-XX	MICRO INDUCTOR 22UH
PL1	1-518-453-21	LAMP, PILOT
PL2	1-518-453-21	LAMP, PILOT
PL3	1-518-453-21	LAMP, PILOT
PL4	1-518-453-21	LAMP, PILOT
PL5	1-518-453-21	LAMP, PILOT
PL6	1-518-453-31	LAMP, PILOT
PL7	1-518-453-31	LAMP, PILOT
PL8	1-518-453-31	LAMP, PILOT
PL9	1-518-453-31	LAMP, PILOT
PL10	1-518-453-31	LAMP, PILOT
PL11	1-518-453-21	LAMP, PILOT
PL12	1-518-453-41	LAMP, PILOT
Q101	8-729-217-03	TRANSISTOR 2SK170
Q102	8-729-217-03	TRANSISTOR 2SK170
Q103	8-729-663-47	TRANSISTOR 2SC1364
Q104	8-729-663-47	TRANSISTOR 2SC1364
Q106	8-729-300-62	TRANSISTOR 2SD666A
Q107	8-729-663-47	TRANSISTOR 2SC1364
Q151	8-729-217-03	TRANSISTOR 2SK170
Q512	8-729-217-03	TRANSISTOR 2SK170
Q153	8-729-663-47	TRANSISTOR 2SC1364

The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.

COILS

MMH : mH, UH : μ H

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q154	8-729-663-47	TRANSISTOR 2SC1364
Q156	8-729-300-62	TRANSISTOR 2SD666A
Q157	8-729-663-47	TRANSISTOR 2SC1364
Q201	8-729-217-03	TRANSISTOR 2SK170
Q202	8-729-663-47	TRANSISTOR 2SC1364
Q203	8-729-663-47	TRANSISTOR 2SC1364
Q204	8-729-224-61	TRANSISTOR 2SK246
Q205	8-729-201-52	TRANSISTOR 2SA1015
Q206	8-729-663-47	TRANSISTOR 2SC1364
Q207	8-729-224-61	TRANSISTOR 2SK246
Q208	8-729-366-81	TRANSISTOR 2SD668
Q209	8-729-364-81	TRANSISTOR 2SB648
Q210	8-729-201-52	TRANSISTOR 2SA1015
Q211	8-729-663-47	TRANSISTOR 2SC1364
Q212	8-729-168-22	TRANSISTOR 2SC2682
Q213	8-729-114-22	TRANSISTOR 2SA1142
Q251	8-729-217-03	TRANSISTOR 2SK170
Q252	8-729-663-47	TRANSISTOR 2SC1364
Q253	8-729-663-47	TRANSISTOR 2SC1364
Q254	8-729-224-61	TRANSISTOR 2SK246
Q255	8-729-201-52	TRANSISTOR 2SA1015
Q256	8-729-663-47	TRANSISTOR 2SC1364
Q257	8-729-224-61	TRANSISTOR 2SK246
Q258	8-729-366-81	TRANSISTOR 2SD668
Q259	8-729-364-81	TRANSISTOR 2SB648
Q260	8-729-201-52	TRANSISTOR 2SA1015
Q261	8-729-663-47	TRANSISTOR 2SC1364
Q262	8-729-168-22	TRANSISTOR 2SC2682
Q263	8-729-114-42	TRANSISTOR 2SA1142
Q301	8-729-663-47	TRANSISTOR 2SC1364
Q302	8-729-663-47	TRANSISTOR 2SC1364
Q303	8-729-201-52	TRANSISTOR 2SA1015
Q304	8-729-201-52	TRANSISTOR 2SA1015
Q305	8-729-612-77	TRANSISTOR 2SA1027R
Q351	8-729-663-47	TRANSISTOR 2SC1364
Q352	8-729-663-47	TRANSISTOR 2SC1364
Q353	8-729-201-52	TRANSISTOR 2SA1015
Q354	8-729-201-52	TRANSISTOR 2SA1015
Q401	8-729-663-47	TRANSISTOR 2SC1364
Q402	8-729-663-47	TRANSISTOR 2SC1364
Q403	8-729-663-47	TRANSISTOR 2SC1364
Q404	8-729-663-47	TRANSISTOR 2SC1364
Q405	8-729-663-47	TRANSISTOR 2SC1364
Q501	8-729-224-61	TRANSISTOR 2SK246
Q502	8-729-224-61	TRANSISTOR 2SK246

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q503	8-729-283-42	TRANSISTOR 2SB834
Q504	8-729-288-02	TRANSISTOR 2SD880
Q505	8-729-247-33	TRANSISTOR 2SA473
Q506	8-729-217-33	TRANSISTOR 2SC1173
Q601	8-729-215-12	TRANSISTOR 2SK150A
Q602	8-729-663-47	TRANSISTOR 2SC1364
Q603	8-729-663-47	TRANSISTOR 2SC1364
Q604	8-729-699-51	TRANSISTOR 2SA995
Q606	8-729-201-52	TRANSISTOR 2SA1015
Q607	8-729-366-81	TRANSISTOR 2SD668
Q608	8-729-201-52	TRANSISTOR 2SA1015
Q609	8-729-663-47	TRANSISTOR 2SC1364
Q611	8-729-663-47	TRANSISTOR 2SC1364
Q612	8-729-201-52	TRANSISTOR 2SA1015
Q613	8-729-364-81	TRANSISTOR 2SB648
Q614	8-729-366-81	TRANSISTOR 2SD668
Q617	8-729-366-81	TRANSISTOR 2SD668
Q618	8-729-364-81	TRANSISTOR 2SB648
Q619	8-729-107-53	TRANSISTOR 2SC2275A
Q620	8-729-190-53	TRANSISTOR 2SA985A
Q621	8-729-168-11	TRANSISTOR 2SC2681
Q622	8-729-114-11	TRANSISTOR 2SA1141
Q623	8-729-663-47	TRANSISTOR 2SC1364
Q624	8-729-201-52	TRANSISTOR 2SA1015
Q625	8-729-663-47	TRANSISTOR 2SC1364
Q626	8-729-201-52	TRANSISTOR 2SA1015
Q627	8-729-201-52	TRANSISTOR 2SA1015
Q628	8-729-663-47	TRANSISTOR 2SC1364
Q629	8-729-366-81	TRANSISTOR 2SD668
Q651	8-729-215-21	TRANSISTOR 2SK150A
Q652	8-729-663-47	TRANSISTOR 2SC1364
Q653	8-729-663-47	TRANSISTOR 2SC1364
Q654	8-729-699-51	TRANSISTOR 2SA995
Q656	8-729-201-52	TRANSISTOR 2SA1015
Q657	8-729-366-81	TRANSISTOR 2SD668
Q658	8-729-201-52	TRANSISTOR 2SA1015
Q659	8-729-663-47	TRANSISTOR 2SC1364
Q661	8-729-663-47	TRANSISTOR 2SC1364
Q662	8-729-201-52	TRANSISTOR 2SA1015
Q663	8-729-364-81	TRANSISTOR 2SB648
Q664	8-729-366-81	TRANSISTOR 2SD668
Q667	8-729-366-81	TRANSISTOR 2SD668
Q668	8-729-364-81	TRANSISTOR 2SB648
Q669	8-729-107-53	TRANSISTOR 2SC2275A
Q670	8-729-190-53	TRANSISTOR 2SA985A

NOTE:

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- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF . Common capacitors are omitted. Refer to the following lists for their part numbers.
MF: μF , PF: $\mu\mu\text{F}$.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.

COILS

- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
Q671	8-729-168-11	TRANSISTOR 2SC2681			
Q672	8-729-114-11	TRANSISTOR 2SA1141			
Q673	8-729-663-47	TRANSISTOR 2SC1364			
Q674	8-729-201-52	TRANSISTOR 2SA1015			
Q675	8-729-663-47	TRANSISTOR 2SC1364			
Q676	8-729-201-52	TRANSISTOR 2SA1015			
Q677	8-729-201-52	TRANSISTOR 2SA1015			
Q678	8-729-663-47	TRANSISTOR 2SC1364			
Q679	8-729-366-81	TRANSISTOR 2SD668			
Q901	△ 8-729-612-77	TRANSISTOR 2SA1027R			
Q902	△ 8-729-663-47	TRANSISTOR 2SC1364			
Q903	△ X-4873-603-1	TRANSISTOR KIT 2SC2944			
Q904	△ X-4873-603-1	TRANSISTOR KIT 2SC2944			
R000	△ 1-205-670-00	WIREWOUND	75	10%	7W
R117	1-244-837-00	CARBON	33	5%	1/2W
R118	1-244-849-00	CARBON	100	5%	1/2W
R119	1-244-921-00	CARBON	100K	5%	1/2W
R120	1-214-840-00	METAL	100	1%	1/2W
R121	1-244-819-00	CARBON	5.6	5%	1/2W
R122	1-214-880-00	METAL	4.7K	1%	1/2W
R123	1-214-907-00	METAL	56K	1%	1/2W
R124	1-244-918-00	CARBON	75K	5%	1/2W
R125	1-244-867-00	CARBON	560	5%	1/2W
R127	1-244-921-00	CARBON	100K	5%	1/2W
R167	1-244-837-00	CARBON	33	5%	1/2W
R168	1-244-849-00	CARBON	100	5%	1/2W
R169	1-244-921-00	CARBON	100K	5%	1/2W
R170	1-214-840-00	METAL	100	1%	1/2W
R171	1-244-819-00	CARBON	5.6	5%	1/2W
R172	1-214-880-00	METAL	4.7K	1%	1/2W
R173	1-214-907-00	METAL	56K	1%	1/2W
R174	1-244-918-00	CARBON	75K	5%	1/2W
R175	1-244-867-00	CARBON	560	5%	1/2W
R177	1-244-921-00	CARBON	100K	5%	1/2W
R318	△ 1-213-144-00	METAL	1.2K	5%	1W F
R407	△ 1-213-144-00	METAL	1.2K	5%	1W F
R410	△ 1-213-144-00	METAL	1.2K	5%	1W F
R413	△ 1-213-144-00	METAL	1.2K	5%	1W F
R416	△ 1-213-144-00	METAL	1.2K	5%	1W F
R419	△ 1-213-144-00	METAL	1.2K	5%	1W F
R501	△ 1-206-475-00	METAL	33	5%	2W F
R503	△ 1-206-475-00	METAL	33	5%	2W F
R510	△ 1-213-131-00	METAL	100	5%	1W F
R511	△ 1-213-131-00	METAL	100	5%	1W F
R512	△ 1-206-485-00	METAL	82	5%	2W F
R513	△ 1-213-131-00	METAL	100	5%	1W F

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R514	1-206-485-00	METAL	82	5%	2W	F
R515	1-206-485-00	METAL	82	5%	2W	F
R516	1-206-485-00	METAL	82	5%	2W	F
R601	1-244-848-00	CARBON	91	5%	1/2W	
R602	1-244-945-00	CARBON	1M	5%	1/2W	
R605	1-244-856-00	CARBON	200	5%	1/2W	
R606	1-244-856-00	CARBON	200	5%	1/2W	
R609	1-214-846-00	METAL	180	1%	1/2W	
R610	1-244-843-00	CARBON	56	5%	1/2W	
R612	1-214-880-00	METAL	4.7K	1%	1/2W	
R615	△ 1-247-114-00	CARBON	200	5%	1/4W	F
R616	△ 1-247-114-00	CARBON	200	5%	1/4W	F
R617	△ 1-247-216-00	CARBON	100	5%	1/2W	F
R618	1-214-789-00	RES, METAL PLATE	0.1		5W	
R619	1-214-789-00	RES, METAL PLATE	0.1		5W	
R620	1-217-582-00	WIREWOUND	8.2	10%	5W	
R621	1-217-582-00	WIREWOUND	8.2	10%	5W	
R625	1-244-843-00	CARBON	56	5%	1/2W	
R628	1-247-116-00	CARBON	240	5%	1/4W	F
R629	1-247-116-00	CARBON	240	5%	1/4W	F
R630	1-247-105-00	CARBON	82	5%	1/4W	F
R631	1-247-105-00	CARBON	82	5%	1/4W	F
R632	△ 1-247-107-00	CARBON	100	5%	1/4W	F
R633	△ 1-247-107-00	CARBON	100	5%	1/4W	F
R636	1-247-224-00	CARBON	220	5%	1/2W	F
R637	1-247-224-00	CARBON	220	5%	1/2W	F
R638	△ 1-206-656-00	METAL	470	5%	2W	F
R641	△ 1-247-192-00	CARBON	10	5%	1/2W	F
R642	△ 1-247-192-00	CARBON	10	5%	1/2W	F
R667	△ 1-247-216-00	CARBON	100	5%	1/2W	F
R668	1-214-789-00	RES, METAL PLATE	0.1		5W	
R669	1-214-789-00	RES, METAL PLATE	0.1		5W	
R670	1-217-582-00	WIREWOUND	8.2	10%	5W	
R671	1-217-582-00	WIREWOUND	8.2	10%	5W	
R678	1-247-116-00	CARBON	240	5%	1/4W	F
R679	1-247-116-00	CARBON	240	5%	1/4W	F
R680	1-247-105-00	CARBON	82	5%	1/4W	F
R681	1-247-105-00	CARBON	82	5%	1/4W	F
R682	1-247-107-00	CARBON	100	5%	1/4W	F
R683	1-247-107-00	CARBON	100	5%	1/4W	F
R686	1-247-224-00	CARBON	220	5%	1/2W	F
R687	1-247-224-00	CARBON	220	5%	1/2W	F
R688	1-206-656-00	METAL	470	5%	2W	F
R691	△ 1-247-192-00	CARBON	10	5%	1/2W	F
R692	△ 1-247-192-00	CARBON	10	5%	1/2W	F

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "△" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (△-△△△-△△△-XX or △-△△△-△△△-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF . Common capacitors are omitted. Refer to the following lists for their part numbers.
MF: μF , PF: μpF .

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

The components identified by shading and mark △ are critical for safety. Replace only with part number specified.

COILS

- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No. Part No. Description

R701	Δ.1-206-671-00	METAL	2K	5%	2W	F
R708	Δ.1-206-660-00	METAL	680	5%	2W	F
R709	Δ.1-206-660-00	METAL	680	5%	2W	F
R712	Δ.1-206-664-00	METAL	1K	5%	2W	F
R901	Δ.1-244-928-00	CARBON	200K	5%	1/2W	F
R902	Δ.1-247-141-00	CARBON	2.7K	5%	1/4W	F
R903	Δ.1-246-483-00	RES. CARBON	2.7K	5%	1/4W	
R904	Δ.1-246-507-00	RES. CARBON	27K	5%	1/4W	
R905	Δ.1-246-469-00	RES. CARBON	680	5%	1/4W	
R906	Δ.1-244-825-00	CARBON	10	5%	1/2W	

RV101 1-224-253-XX RES. ADJ. SOLID 22K
RV151 1-224-253-XX RES. ADJ. SOLID 22K
RV201 1-224-251-XX RES. ADJ. SOLID 4.7K

RV251 1-224-251-XX RES. ADJ. SOLID 4.7K
RV301 1-228-098-00 RES. VAR. CARBON 2K/2K
RV302 1-228-098-00 RES. VAR. CARBON 2K/2K

RV303 1-228-099-00 RES. VAR. CARBON 20K/20K
RV351 1-228-098-00 RES. VAR. CARBON 2K/2K
RV352 1-228-098-00 RES. VAR. CARBON 2K/2K

RV353 1-228-099-00 RES. VAR. CARBON 20K/20K
RV602 1-224-247-XX RES. ADJ. METAL GLAZE 100
RV603 1-224-248-XX RES. ADJ. SOLID 470

RV652 1-224-247-XX RES. ADJ. METAL GLAZE 100
RV653 1-224-248-XX RES. ADJ. SOLID 470

RY1 1-515-401-00 RELAY
RY2 1-515-401-00 RELAY
RY3 1-515-401-00 RELAY

RY4 1-515-401-00 RELAY
RY5 1-515-401-00 RELAY

RY8 Δ.1-515-367-00 RELAY
RY9 1-515-401-00 RELAY

S1 1-553-628-00 SWITCH, ROTARY SLIDE
S1 1-553-304-00 SWITCH, SLIDE (REMOTE TYPE)
S2 1-553-598-00 SWITCH, SLIDE (REMOTE TYPE)
S2 1-553-596-00 SWITCH, ROTARY SLIDE

S3 1-553-614-00 SWITCH, PUSH (5 KEY)
S4 1-553-595-00 SWITCH, PUSH (3 KEY)
S4 1-553-597-00 SWITCH, SLIDE (REMOTE TYPE)

S5 1-553-595-00 SWITCH, PUSH (3 KEY)
S6 1-553-595-00 SWITCH, PUSH (3 KEY)
S7 1-553-593-00 SWITCH, PUSH (2 KEY)

S8 1-553-593-00 SWITCH, PUSH (2 KEY)
S9 1-553-594-00 SWITCH, PUSH (2 KEY)
S10 1-553-594-00 SWITCH, PUSH (2 KEY)

S11 Δ.1-552-141-00 SWITCH, PUSH

ELECTRICAL PARTS

Ref.No. Part No. Description

T901	Δ.1-543-098-00	CORE
T902	Δ.1-543-100-00	CORE
T903	Δ.1-447-099-00	TRANSFORMER, CONVERTER

TH701 1-800-427-00 POSISTOR

TM901 1-536-571-00 TERMINAL BOARD, 4P (SPEAKER A)
TM902 1-536-571-00 TERMINAL BOARD, 4P (SPEAKER B)

D655 8-719-200-02 10E2
D656 8-719-815-55 1S1555
D657 8-719-815-55 1S1555

D658 8-719-422-21 1T22AM
D659 8-719-422-21 1T22AM
D660 8-719-422-21 1T22AM

D661 8-719-422-21 1T22AM
D662 8-719-815-55 1S1555
D663 8-719-815-55 1S1555

D701 8-719-815-55 1S1555
D702 8-719-815-55 1S1555
D703 8-719-936-33 EQB01-33

D704 8-719-910-92 HZ9A2L

D901 Δ.8-719-815-55 1S1555
D902 Δ.8-719-815-55 1S1555

D903 Δ.8-719-300-22 CTU22U
D904 Δ.8-719-300-22 CTU22U
D905 Δ.8-719-210-12 10DF2

D906 Δ.8-719-210-12 10DF2
D907 Δ.8-719-210-12 10DF2
D908 Δ.8-719-210-12 10DF2

D951 Δ.8-719-230-24 30DL4FA
D952 Δ.8-719-230-24 30DL4FA
D953 Δ.8-719-230-24 30DL4FA

D954 Δ.8-719-230-24 30DL4FA

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "Δ" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F: nonflammable

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

COILS

- MMH: mH, UH: μH

1/4 WATT CARBON RESISTORS

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		